



Participants Members of Team F

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About the Case Study

The loan providing companies (like Bank or other financial Institutions) find it hard to give loans to the people due to their insufficient or non-existent credit history. Because of that, some consumers use it to their advantage by becoming a defaulter.

When the company receives a loan application, the company has to decide for loan approval based on the applicant's profile. Two types of risks are associated with the bank's decision: 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, i.e. he/she is likely to default, then approving the loan may lead to a financial loss for the company.

Daid Set Explanation

PREVIOUS APPLICATION DATA

1048576 numbers of Rows 38 numbers of Columns

APPLICATION DATA

307512 numbers of Rows 122 numbers of Columns

AFTER CLEANING & TAKING IMPORTANT DATA

PREVIOUS APPLICATION NEW DATA

664066 numbers of Rows 9 numbers of Columns

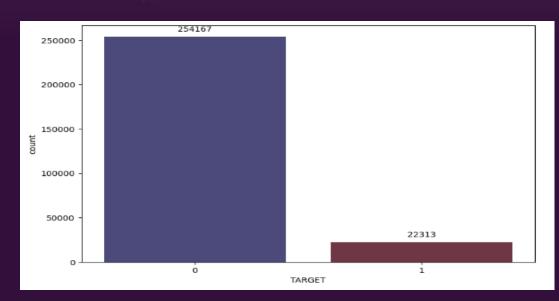
APPLICATION NEW DATA

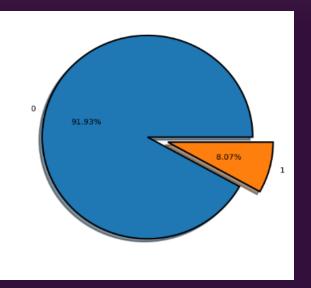
276480 numbers of Rows 13 numbers of Columns

Target Variable

- 1 AS REPRESENTING A LOAN THAT DEFAULTED

 AND
- O AS A LOAN THAT WAS SUCCESSFULLY APPROVED AND REPAID.



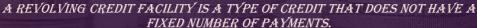




A CASH LOAN IS A LOAN WHICH IS RECEIVED BY
THE BORROWER IN CASH.

THIS SETS IT APART FROM OVERDRAFT LOANS, INSTALLMENT LOANS AND LEASES.

CASH LOANS MAY BE GIVEN TO A PRIVATE INDIVIDUAL AS A PERSONAL LOAN OR TO A BUSINESS AS A BUSINESS LOAN.

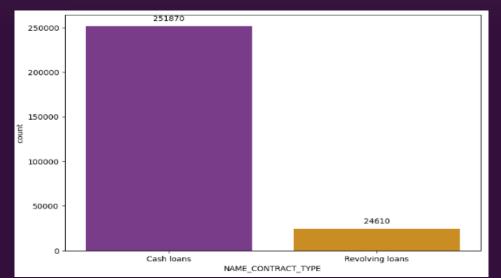


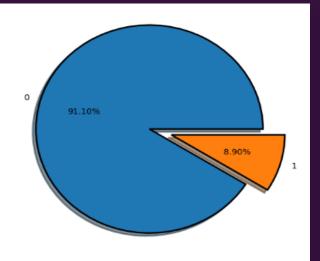
IT ALLOWS YOU TO USE A LINE OF CREDIT UP TO A SPECIFIED LIMIT. THIS

MEANS YOU CAN REPEATEDLY

ACCESS THE CREDIT AS LONG AS YOU DO NOT EXCEED THE SET CREDIT LIMIT AND CONTINUE MAKING TIMELY

PAYMENTS. A CREDIT CARD IS AN EXAMPLE OF A FINANCIAL INSTRUMENT THAT OFFERS A REVOLVING CREDIT.





Identification of Linea on Free was application consumer to an

CASH LOAN

A CASH LOAN IS A LOAN WHICH IS RECEIVED BY THE BORROWER IN CASH.

THIS SETS IT APART FROM OVERDRAFT LOANS, INSTALLMENT LOANS AND LEASES.

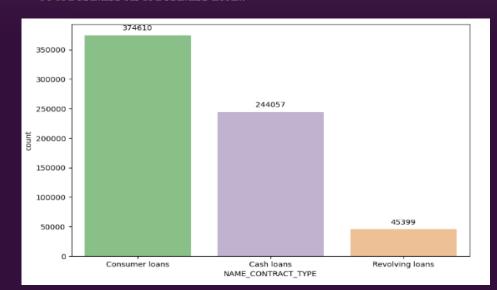
CASH LOANS MAY BE GIVEN TO A PRIVATE INDIVIDUAL AS A PERSONAL LOAN OR TO A BUSINESS AS A BUSINESS LOAN. A CONSUMER LOAN IS A LOAN THAT BANKS OFFER TO CUSTOMERS TO BUY HOUSEHOLD GOODS AND APPLIANCES AND EVEN PERSONAL DEVICES. THESE INCLUDE TELEVISION SETS, AIR-CONDITIONERS, HOME THEATRE SYSTEMS, REFRIGERATORS, LAPTOPS, MOBILE PHONES, CAMERAS AND EVEN MODULAR KITCHENS. REVOLVING LOAN

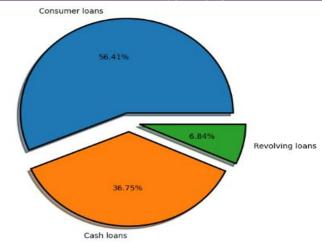
A REVOLVING CREDIT FACILITY IS A TYPE OF CREDIT THAT DOES NOT HAVE A FIXED NUMBER OF PAYMENTS.

IT ALLOWS YOU TO USE A LINE OF CREDIT UP TO A SPECIFIED LIMIT. THIS MEANS YOU CAN REPEATEDLY

ACCESS THE CREDIT AS LONG AS YOU DO NOT EXCEED THE SET CREDIT LIMIT AND CONTINUE MAKING TIMELY

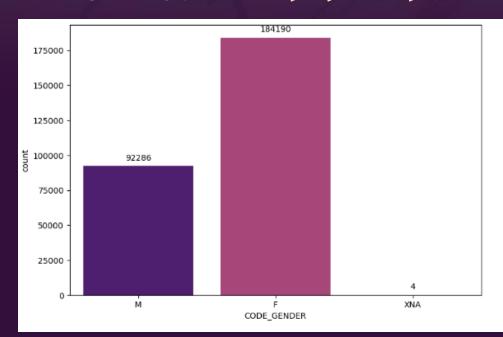
PAYMENTS. A CREDIT CARD IS AN EXAMPLE

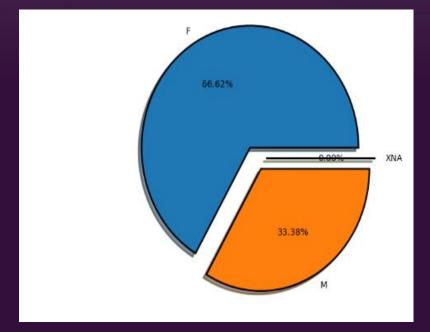




Types of Gender

3 TYPES OF GENDER ARE THERE: MALE, FEMALE AND TRANSGENDER



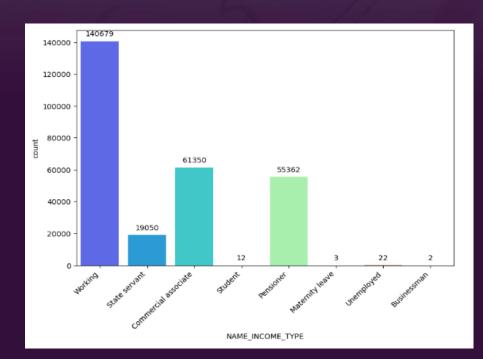


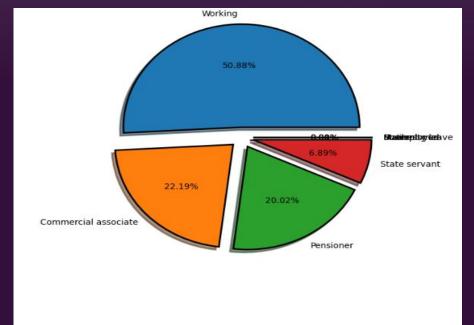
1.11七十年年2月

Income Sype

1.11年後海湖

• SOURCE OF INCOME IS VITAL COMPONENT IN TERMS OF GETTING LOAN FROM BANK. HERE WE CAN SEE & TYPES OF INCOME.

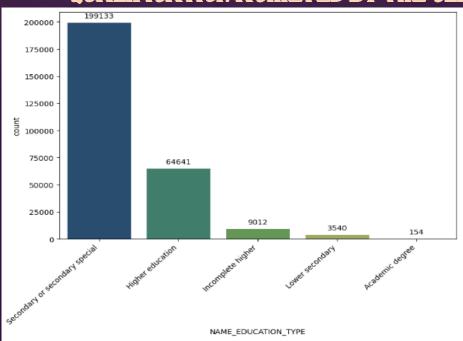


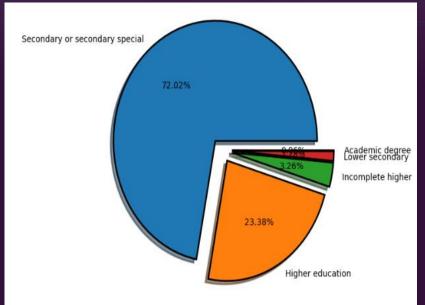




1.11年後年出

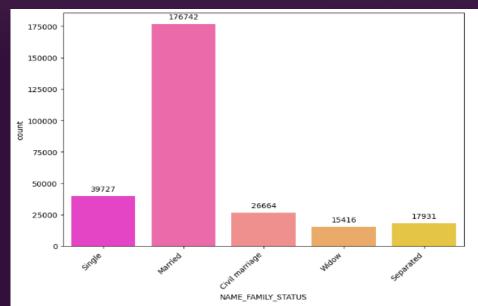
• QUALIFICATION ACHIEVED BY THE CLIENT OR CONSUMER OF THE BANK.

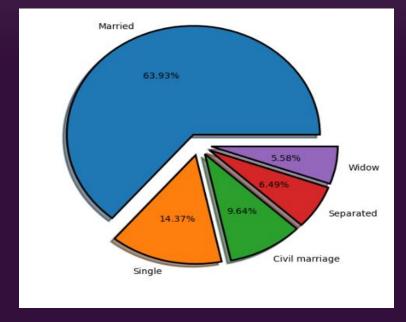






· IN TERMS OF LOAN PROVIDED BY THE BANK, CIVIL STATUS OR MARITAL STATUS CAN IMPACT THE MORTGAGE ELIGIBILITY & INTEREST RATE IN INDIA.

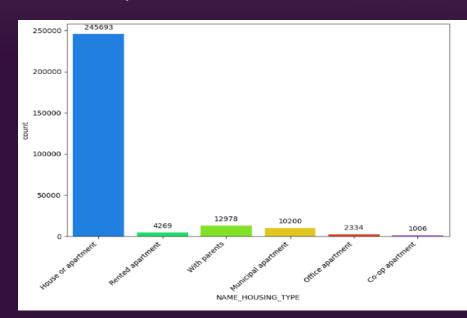


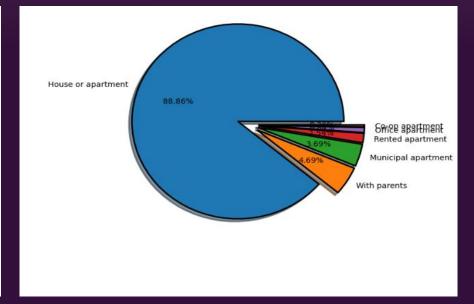


1.11476



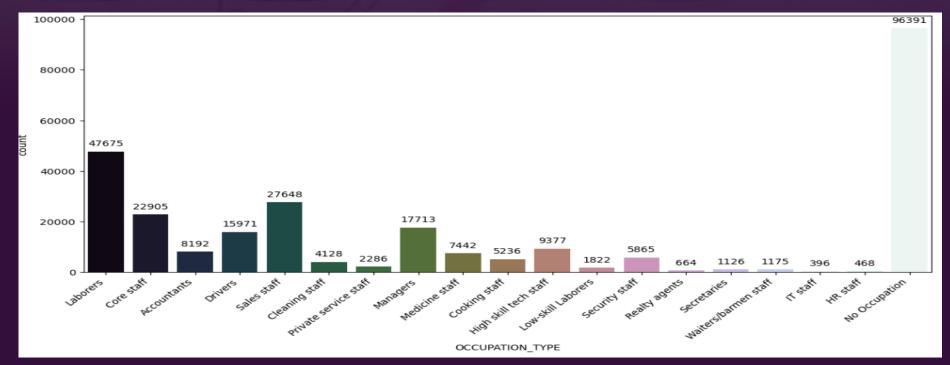
• PROPERTY TYPE IS MUCH MORE IMPORTANT IN TERMS OF GETTING LOAN.
MORTGAGE LOAN IS ONE OF THE EXAMPLE OF BANK LOAN.





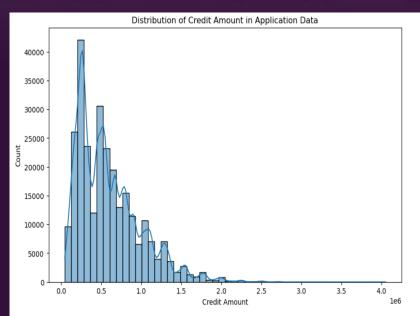
Occupation type

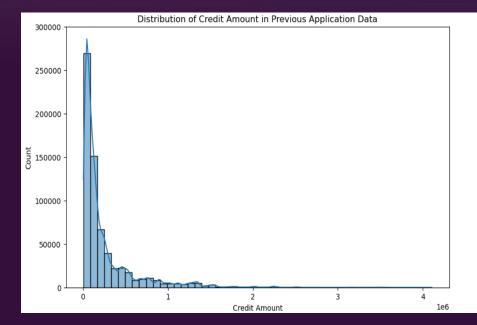
• SOURCE OF INCOME IS MUCH MORE VITAL IN REPAYING & GETTING THE LOAN FROM ANY FINANCIAL INSTITUTIONS.





- THE BANK CREDIT IS THE TOTAL AMOUNT OF MONEY THAT A PERSON OR BUSINESS CAN BORROW FROM A BANK.
- HERE IN THE DATA POINT WE CAN SEE THAT AVERAGE CREDIT AMOUNT IS 5LAKHS 92 THOUSANDS IN APPLICATION DATA WHERE AS IN PREVIOUS APPLICATION DATA IS 2LAKHS 46 THOUSANDS.

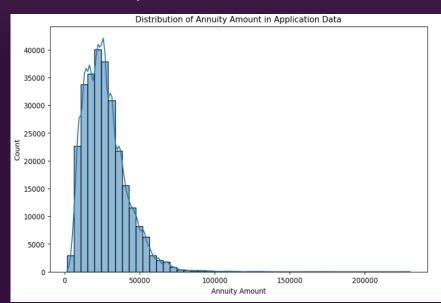


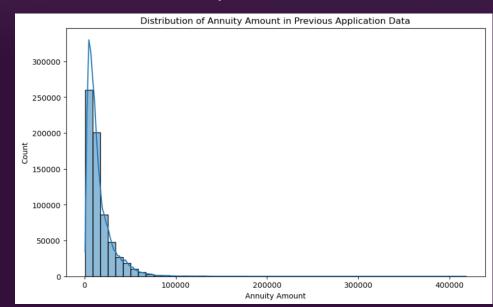


1.1144941

Annuity amount

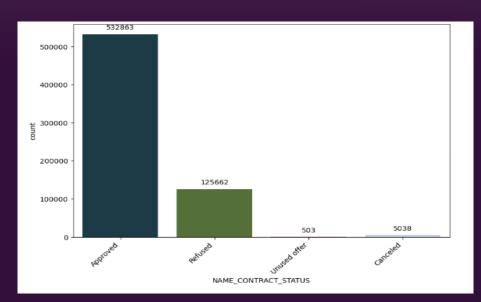
- A PERSON PAYS EITHER A LUMP SUM AMOUNT OR REGULAR INSTALMENTS IN THE GIVEN
 PERIOD TO GET REGULAR PAYMENTS OR PAYOUTS AS LONG AS HE/SHE LIVES OR FOR A PRESPECIFIED FIXED PERIOD.
- · AS PER DATA SET OF THE BOTH CURRENT & PREVIOUS APPLICATION IT SUGGEST THAT AVERAGE ANNUITY AMOUNT IS 26 THOUSANDS & 15 THOUSANDS RESPECTIVELY.

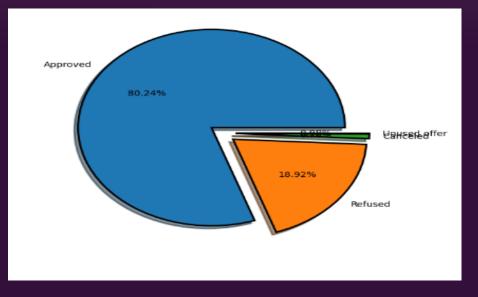




1.114400

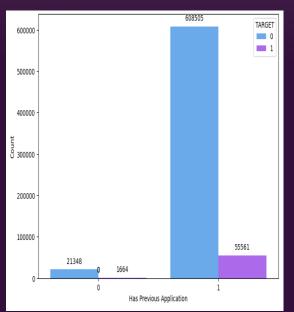
• AS PER THE PREVIOUS DATA, APPLICATION STATUS HAS AN IMPACTFUL OCCURRENCE IN TERMS OF PROVIDING CREDIT TO THE CLIENT.

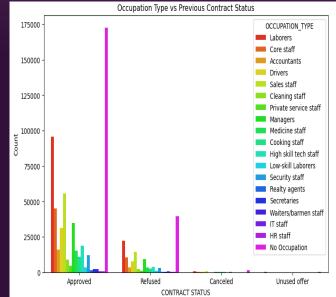


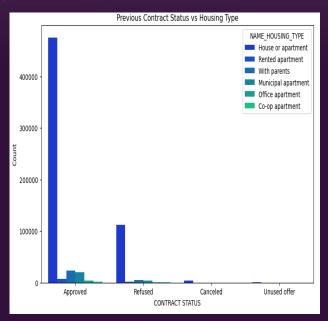


Relationship between two data Set

- THE 1ST PLOT SHOWS THAT THE CLIENT WHO ARE PREVIOUSLY ALSO APPLIED FOR THE LOAN AND THEY CONSIDERED AS THE DEFAULTERS & NON DEFAULTERS.
- 2ND PLOT SHOWCASE THAT ACCORDING TO THE OCCUPATION OF THE CLIENT, PREVIOUSLY THOSE CLIENT HAS BEEN CONSIDERED.
- 3RD PLOT INDICATE THE HOUSING TYPE ACCORDING TO THE PREVIOUS DATA.



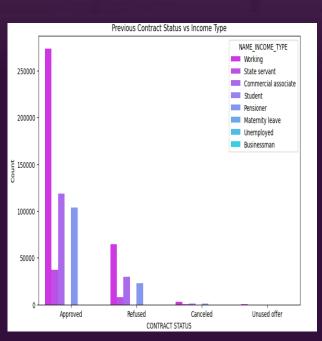


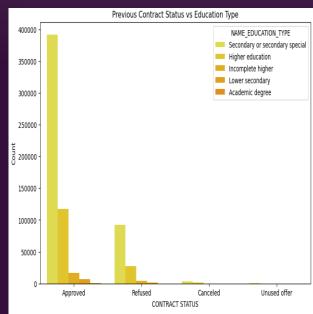


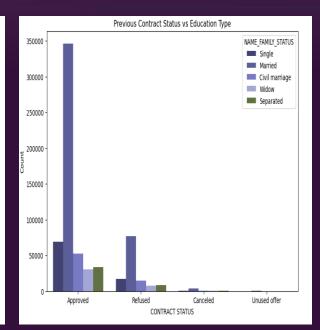
Relationship between two data Set

1.1144000

- ACCORDING THE 1ST PLOT INDICATE THE INCOME TYPE IN RESPECT TO CONTRACT STATUS.
- IN THE 2ND PLOT, EDUCATION TYPE SHOWCASE WITH CONTRACT STATUS.
- · LAST PLOT SHOWS THE MARITAL STATUS OF A CLIENT IN TERMS OF CONTRACT STATUS.







Cuptive Statistic

- ACCORDING TO THE PREVIOUS APPLICATION DATA.
- HIGHEST APPLICATION AMOUNT IS 40LAKHS 50 THOUSANDS & MINIMUM IS 5 THOUSANDS 4 HUNDREDS.
- MAXIMUM AMOUNT CREDIT TO THEIR ACCOUNT IS 41 LAKHS 4 THOUSANDS & MINIMUM IS 5 THOUSANDS.
- 4 LAKHS 18 THOUSANDS IS THE HIGHEST ANNUITY AMOUNT & THE LOWEST ANNUITY AMOUNT IS 5 HUNDREDS.
- THE MAXIMUM PRICE OF THE GOOD S IS 40LAKHS 50 THOUSANDS & MINIMUM IS 5 THOUSANDS 4HUNDREDS.

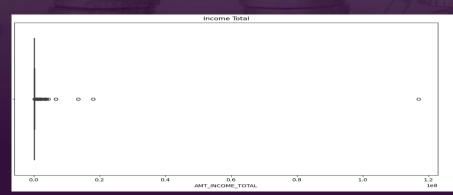
- ACCORDING TO THE APPLICATION DATA,
- HIGHEST INCOME OF CLIENT IS 11 CORERS 70 LAKHS & MINIMUM INCOME IS 25 THOUSANDS SIX FIFTY.
- MAXIMUM AMOUNT CREDIT TO THEIR ACCOUNT IS 40LAKHS 50 THOUSANDS & MINIMUM IS 45 THOUSANDS.
- 2 LAKHS 30 THOUSANDS IS THE HIGHEST ANNUITY AMOUNT
 & THE LOWEST ANNUITY AMOUNT IS 16 HUNDREDS.
- THE MAXIMUM PRICE OF THE GOOD S IS 40LAKHS 50 THOUSANDS & MINIMUM IS 45 THOUSANDS.

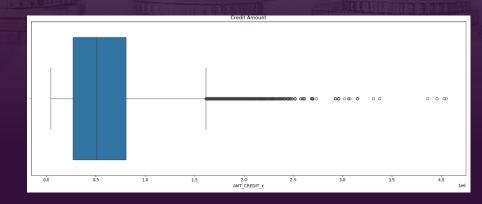
	count	mean	std	min	25%	50%	75%	max
SK_ID_PREV	664066.0	1.913498e+06	534504.543534	1000001.0	1445451.5	1910115.5	2377385.5	2845379.0
SK_ID_CURR	664066.0	2.785958e+05	102834.116102	100002.0	189517.0	279184.0	367692.0	456255.0
AMT_ANNUITY	664066.0	1.592362e+04	14849.862994	580.0	6259.0	11250.0	20336.0	418058.0
AMT_APPLICATION	664066.0	2.307181e+05	317652.951457	5400.0	51795.0	112500.0	238500.0	4050000.0
AMT_CREDIT	664066.0	2.467526e+05	346078.426893	5139.0	50513.0	113571.0	269550.0	4104351.0
AMT_DOWN_PAYMENT	664066.0	4.197126e+03	16352.899508	-1.0	0.0	0.0	3938.0	2150100.0
AMT_GOODS_PRICE	664066.0	2.307421e+05	317669.742068	5400.0	51795.0	112500.0	238500.0	4050000.0

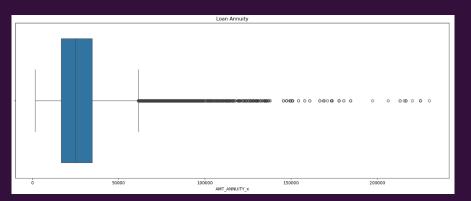
	count	mean	std	min	25%	50%	75%	max
SK_ID_CURR	276480.0	278230.126595	102810.910324	100002.0	189221.75	278337.5	367214.25	456255.0
TARGET	276480.0	0.080704	0.272380	0.0	0.00	0.0	0.00	1.0
AMT_INCOME_TOTAL	276480.0	167312.715299	245504.884956	25650.0	112500.00	144000.0	202500.00	117000000.0
AMT_CREDIT	276480.0	592378.761549	393803.008467	45000.0	270000.00	509400.0	808650.00	4050000.0
AMT_ANNUITY	276480.0	26970.109776	14189.280097	1616.0	16551.00	24836.0	34511.00	230162.0
AMT_GOODS_PRICE	276480.0	532049.647819	360646.454244	40500.0	238500.00	450000.0	679500.00	4050000.0

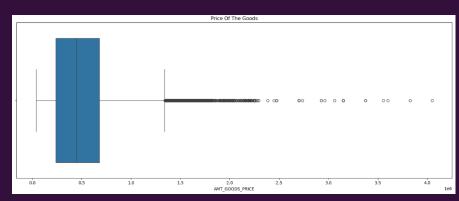
Cuttier Detection

AS PER THE DATA POINT WE CAN OBSERVE THAT ALL FEATURES HAS THE OUTLIERS.



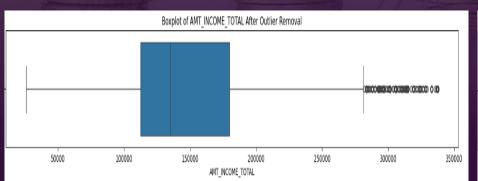


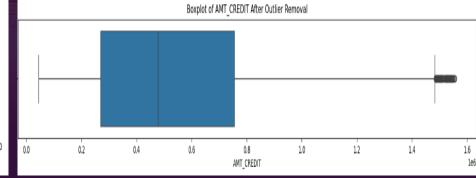


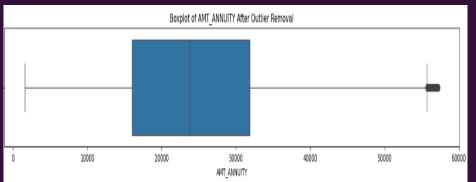


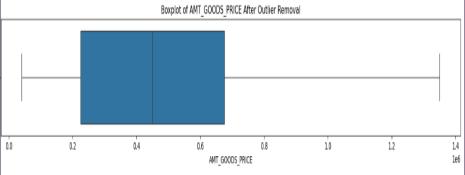
Attention of Outlier

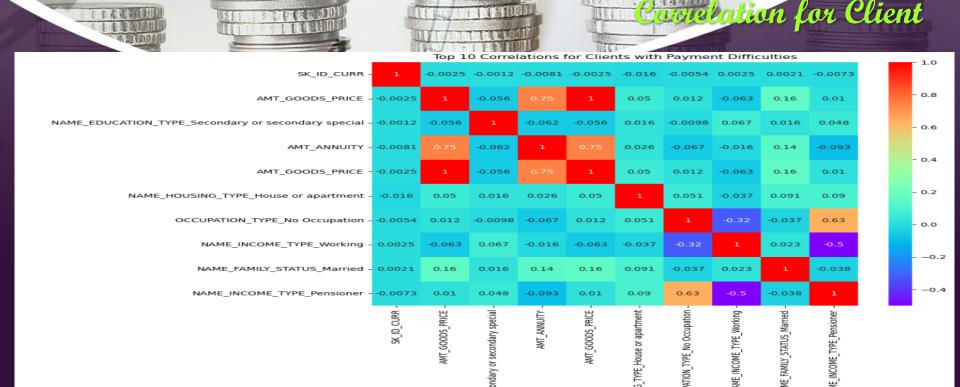
AFTER USING IQR METHOD WE CAN SEE THERE WAS REDUCTION IN THE OUTLIERS











- THERE WAS A POSITIVE CORRELATION BETWEEN
 - GOODS PRICE & ANNUITY
 - OCCUPATION & INCOME TYPE (PENSIONER)
- · THERE WAS A NEGATIVE CORRELATION AS WELL
 - EDUCATION & ANNUITY
 - EDUCATION & GOODS PRICE

		Top 10		tions fo	r Clients	withou	ut Paym	ent Diff	iculties	- Marian	2.6	
SK_ID_CURR -	1	0.00087	-0.00068	0.0006	0.00087	0.0013	-0.0006	-0.0016	-0.0062	-0.0032	1.0	,
AMT_GOODS_PRICE	0.00087		0.069		1	-0.062	0.039	-0.0007	0.15	-0.016	- o.a	3
NAME_EDUCATION_TYPE_Higher education	-0.00068	0.069	1	0.058	0.069	-0.1	0.0027	-0.04	0.0095	-0.045	- o.e	5
AMT_CREDIT	0.0006		0.058			-0.064	0.035	0.005	0.14	-0.016	- 0.4	1
AMT_GOODS_PRICE -	0.00087		0.069			-0.062	0.039	-0.0007	0.15	-0.016		
NAME_INCOME_TYPE_Pensioner	0.0013	-0.062	-0.1	-0.064	-0.062		0.094	0.0047	-0.057	-0.53	- 0.2	ž
NAME_HOUSING_TYPE_House or apartment	-0.0006	0.039	0.0027	0.035	0.039	0.094	1	-0.56	0.081	-0.043	- 0.0	>
NAME_HOUSING_TYPE_Municipal apartment	-0.0016	-0.0007	-0.04	0.005	-0.0007	0.0047	-0.56	1	-0.029	-0.015	0).2
NAME_FAMILY_STATUS_Married	-0.0062	0.15	0.0095	0.14	0.15	-0.057	0.081	-0.029	1	0.033	0	0.4
NAME_INCOME_TYPE_Working	-0.0032	-0.016	-0.045	-0.016	-0.016	-0.53	-0.043	-0.015	0.033	1		
	SK_ID_CURR -	AMT_GOODS_PRICE -	.ATION_TYPE_Higher education -	AMT_CREDIT -	AMT_GOODS_PRICE -	NAME_INCOME_TYPE_Pensioner -	ING_TYPE_House or apartment -	NG_TYPE_Municipal apartment -	NAME_FAMILY_STATUS_Married -	NAME_INCOME_TYPE_Working -		

Conclution for Client

- THERE WAS A POSITIVE CORRELATION BETWEEN
 - GOODS PRICE & CREDIT AMOUNT
 - GOODS PRICE & EDUCATION

F & 花型調剤

- THERE WAS A NEGATIVE CORRELATION AS WELL
 - HOUSING TYPE (HOUSE OR APARTMENT & MUNICIPAL APARTMENT)

- INCOME TYPE (WORKING & PENSIONER)

《海线时间		The second second		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Gior		Parties and the second second
SK_ID_CURR -	1	0.0014	0.0034	-0.0011	-0.0013	-0.00068	0.00029	0.0015	1.00
TARGET -	0.0014	1	-0.002	-0.0062	0.013	-0.016	-0.019	0.0018	- 0.75
AMT_INCOME_TOTAL -	0.0034	-0.002	1	0.32			0.039	0.18	- 0.50
AMT_CREDIT -	-0.0011	-0.0062	0.32	1	0.77	0.98	0.035	0.11	- 0.25
AMT_ANNUITY -	-0.0013	0.013		0.77	1	0.76	0.043	0.11	- 0.00
AMT_GOODS_PRICE -	-0.00068	-0.016		0.98	0.76	1	0.037	0.11	0.25
AMT_DOWN_PAYMENT -	0.00029	-0.019	0.039	0.035	0.043	0.037	1	0.0055	0.50
AMT_APPLICATION -	0.0015	0.0018	0.18	0.11	0.11		0.0055	1	0.75
	sk_iD_curr -	TARGET -	AMT_INCOME_TOTAL -	AMT_CREDIT -	AMT_ANNUTY -	AMT_GOODS_PRICE -	AMT_DOWN_PAYMENT -	AMT_APPLICATION -	1.00

etaina on Merge data

THERE WAS A POSITIVE CORRELATION BETWEEN

- GOODS PRICE & CREDIT AMOUNT
- CREDIT AMOUNT & ANNUITY AMOUNT
- GOODS PRICE & ANNUITY AMOUNT



Dashboard 2: Previous Applications Data

For the Previous Applications Data dashboard, focus on these relationships:

- 1. Loan Application Status Analysis:
 - NAME_CONTRACT_STATUS vs. NAME_CONTRACT_TYPE: Visualize approval and refusal rates based on contract type.
 - NAME_CONTRACT_STATUS vs. AMT_CREDIT: Compare average credit amounts for approved vs. refused loans.
 - SK_ID_CURR vs. NAME_CONTRACT_STATUS: Track the status of previous applications for each applicant.
- 2. Financial Metrics Analysis:
 - AMT_ANNUITY vs. AMT_APPLICATION: Explore the relationship between the amount
 applied for and the annuity of the loan.
 - AMT_DOWN_PAYMENT vs. AMT_GOODS_PRICE: Correlate down payments with the price
 of goods.
 - AMT_CREDIT vs. AMT_DOWN_PAYMENT: Analyze how the down payment relates to the total credit amount.
- Contract and Application Details:
 - NAME_CONTRACT_TYPE vs. AMT_CREDIT: Compare credit amounts across different types
 of contracts.
 - NAME_CONTRACT_TYPE vs. AMT_APPLICATION: Show requested loan amounts by contract type.
 - SK_ID_PREV vs. NAME_CONTRACT_STATUS: Review the outcomes of previous loan applications.



Trevious data



Dashboard 1: Application Data

- 1. Loan Default Analysis:
 - TARGET vs. NAME_CONTRACT_TYPE: Explore default rates by loan type.
 - . TARGET vs. AMT_CREDIT: Compare credit amounts between defaulters and non-defaulters.
 - . TARGET vs. CODE_GENDER: Analyze default rates by gender.
- 2. Income and Loan Relationships:
 - AMT_INCOME_TOTAL vs. AMT_CREDIT: Examine the relationship between income and loan
 amounts.
 - NAME_INCOME_TYPE vs. AMT_INCOME_TOTAL: Compare income levels across different income types.
 - . AMT_CREDIT vs. AMT_GOODS_PRICE: Correlate loan amounts with the price of goods.
- 3. Demographic Insights:
 - NAME_EDUCATION_TYPE vs. AMT_INCOME_TOTAL: Analyze income based on education levels.
 - NAME_FAMILY_STATUS vs. AMT_CREDIT: Compare loan amounts by family status.
 - NAME_HOUSING_TYPE vs. AMT_ANNUITY: Explore the impact of housing type on annuity
 payments.
- 4. Occupation-Based Analysis:
 - OCCUPATION_TYPE vs. AMT_INCOME_TOTAL: Compare income levels across different occupations.
 - . OCCUPATION_TYPE vs. TARGET: Investigate default rates by occupation type.

MILE L. 5 Reset Filters CURRENT APPLICATIONS 532.12K 167.31K 26.97K 251.87K 24.61K 22.313K 254.167K 276.48K 592.38K Total Applications Avg Amount Credited Avg Goods Price Avg Income Avg Annuity Cash Loans Revolving Loans Defaulters Non Defaulters Percentage of Defaulters vs Non Defaulters by Income Type Percentage of Each Contract Type Percentage of number of applications with different Genders Number of Defaulters and Non Defaulters 24.61K (8.9%) Businessman 92 29K (33 38%) Commercial associate CODE GENDER Contract Type Cash loans Maternity leave Revolving loans Pensioner - 184.19K (66.62%) Non Defaulters State servant Number of applications of from different Occupations Avg Income & Average Price of Good VS Occupation Type Avg Amount Credited to people having different Family Status Student Average Income Average Price of Good 96.39K (10.79%) OCCUPATION TYPE No Occupation Working Laborers Sales staff 27.65K Core staff Defaulters Non Defaulters Managers 47.68K (22.45%) -**FILTERS Education Type** Avg Annuity & Avg Loan Amount VS Housing Type Avg Income of people with different Degrees Avg Amount Credited to people having different Housing Type Average Annuity Average Loan Amount Family Status Office apartment 621.76K 598.00K House or apartmen 600K 596,48K Municipal apartm. Income Type 580.79K Co-op apartment 550K Rented apartment 521.07K Occupation Type 501.90K With parents Co-op House or Municipal Rented apartm... apartm... apartm... apartm... apartm...

1.1144020

ward on Application data

