POWER BI ASSIGNMENT - DASHBOARDS

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Q1) Understanding the problem statement and Import the dataset.

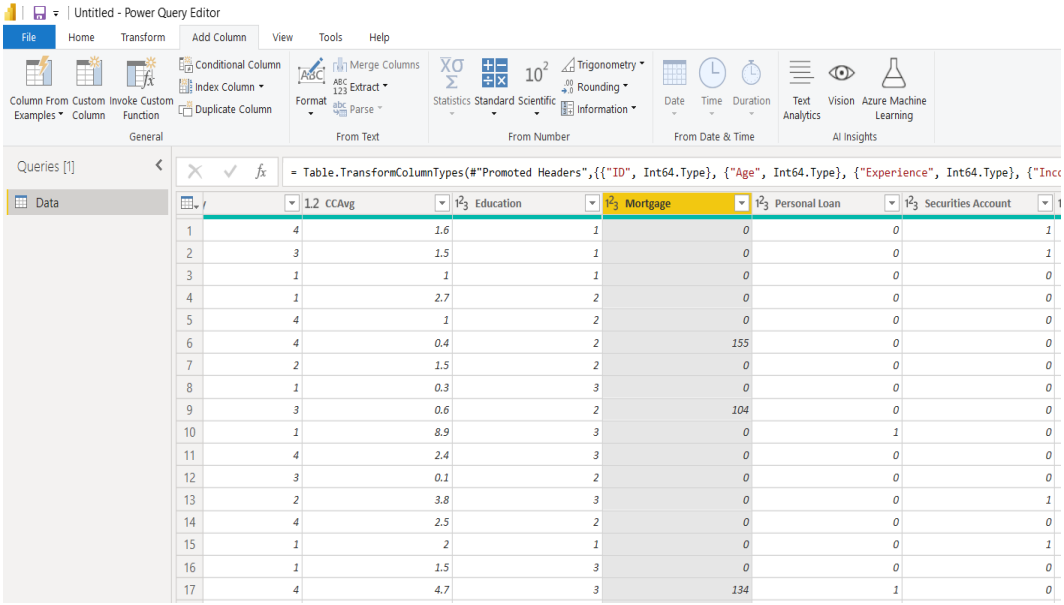
- This case is about a bank (Thera Bank). The majority of the customers are liability customers (depositors) with varying sizes of deposits.The number of customers who are also borrowers (asset customers) is quite small, and the bank is interested in expanding this base rapidly to bring in more loan business and in the process, earn more through the interest on loans. In particular, the management wants to explore ways of converting its liability customers to personal loan customers (while retaining them as depositors).
- Dataset Name - Bank_Personal_Loan_Modelling.xlsx
- Dataset Download Link - https://www.kaggle.com/datasets/itsmesunil/bank-loan-modelling/download?datasetVersionNumber=1

Data Description

1. **ID:** Customer ID
2. **Age:** Customer's age in completed years.
3. **Experience:** Number of years of professional experience.
4. **Income:** Annual income of the customer ($000).
5. **ZIPCode:** Home Address ZIP code.
6. **Family:** Family size of the customer.
7. **CCAvg:** Avg. spending on credit cards per month ($000).
8. **Education:** Education Level of the customer. Here 1: Undergrad; 2: Graduate; 3: Advanced/Professional.
9. **Mortgage:** Value of house mortgage if any ($000).
10. **Personal Loan:** Did this customer accept the personal loan offered in the last campaign?
11. **Securities Account:** Does the customer have a securities account with the bank?
12. **CD Account:** Does the customer have a certificate of deposit (CD) account with the bank?
13. **Online:** Does the customer use internet banking facilities?
14. **CreditCard:** Does the customer uses a credit card issued by Universal Bank?

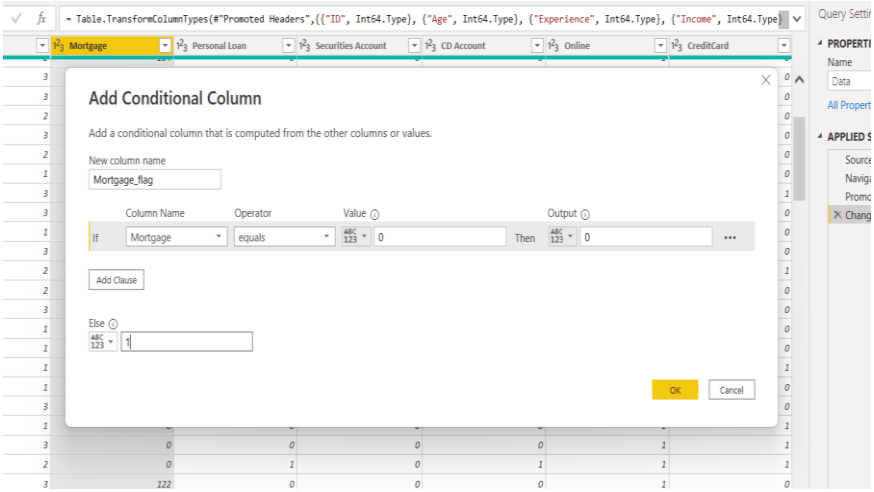
Q2) Transformation of the data:

- Go to the home tab -> Click on transform data. This will open the power query editor.
- For the variable Mortgage, a new flag variable is created that takes value 0 if the person has not taken a mortgage loan and value 1 if the person has taken a mortgage loan.
- Go to Add column tab in the Power query editor -> Click on the custom column.



		CCAvg	Education	Mortgage	Personal Loan	Securities Account
1	4	1.6	1	0	0	1
2	3	1.5	1	0	0	1
3	1	1	1	0	0	0
4	1	2.7	2	0	0	0
5	4	1	2	0	0	0
6	4	0.4	2	155	0	0
7	2	1.5	2	0	0	0
8	1	0.3	3	0	0	0
9	3	0.6	2	104	0	0
10	1	8.9	3	0	1	0
11	4	2.4	3	0	0	0
12	3	0.1	2	0	0	0
13	2	3.8	3	0	0	1
14	4	2.5	2	0	0	0
15	1	2	1	0	0	1
16	1	1.5	3	0	0	0
17	4	4.7	3	134	1	0

- Give the condition that if the value in the mortgage column is 0, then the new value is 0. Else, the new value is 1. We don't need the original Mortgage column, so we will remove it from the table.

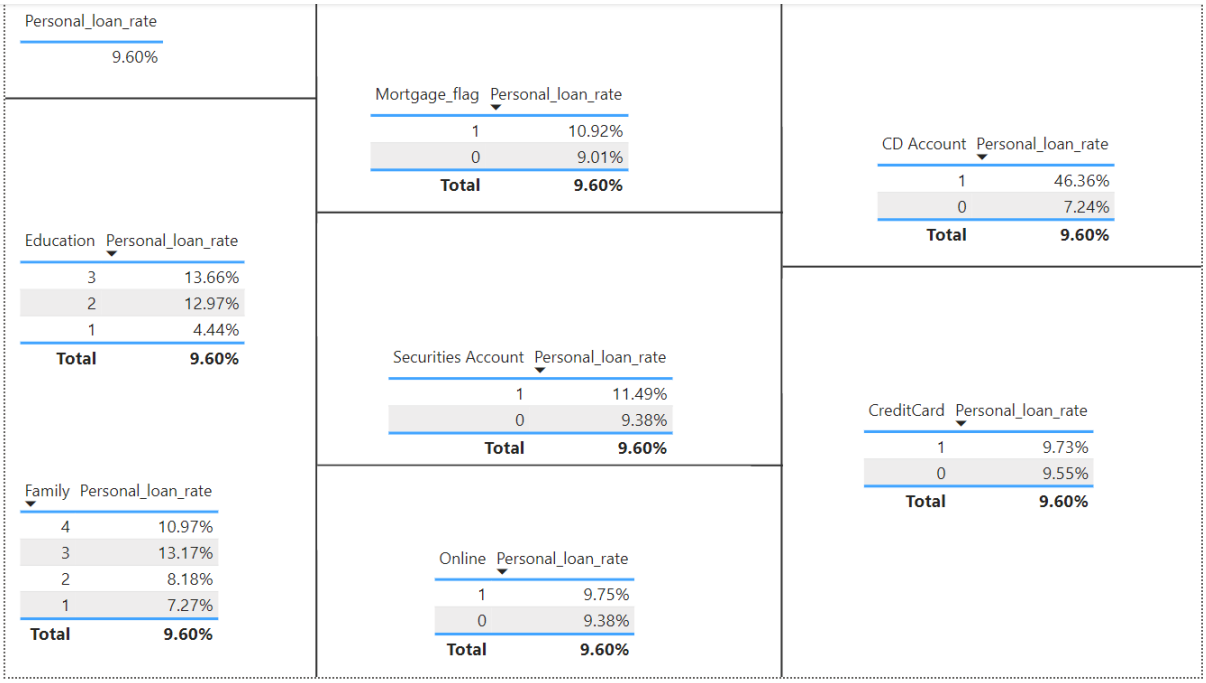


- Rename all the steps performed in Transformation so that we can easily follow what transformations are done at later.
- In the Applied steps field in the Power query, we can see all the steps performed in Transformation.
- These names can be changed by right click -> Rename.
- Before closing the power query, click on close and apply in the home tab.

Q3) DAX measures for target variable.

- Since there is only one table, joining the data set is not required here. Here the target variable is Personal_Loan. First, create a new DAX measure – Personal_loan_rate.
- Analyze the Personal_loan in different contexts. For example, to analyze Personal_loan with CD Account

Result



Personal_loan_rate
9.60%

Mortgage_flag	Personal_loan_rate
1	10.92%
0	9.01%
Total	**9.60%**

CD Account	Personal_loan_rate
1	46.36%
0	7.24%
Total	**9.60%**

Education	Personal_loan_rate
3	13.66%
2	12.97%
1	4.44%
Total	**9.60%**

Securities Account	Personal_loan_rate
1	11.49%
0	9.38%
Total	**9.60%**

CreditCard	Personal_loan_rate
1	9.73%
0	9.55%
Total	**9.60%**

Family	Personal_loan_rate
4	10.97%
3	13.17%
2	8.18%
1	7.27%
Total	**9.60%**

Online	Personal_loan_rate
1	9.75%
0	9.38%
Total	**9.60%**

Q4) Univariate Analysis -Categorical and Discrete Exploration. Create a table for each variable with the Count of ID. Write down your observations.

Result

CD Account

CD Account	Count of ID	Percent_of_total
1	302	6.04%
0	4698	93.96%
Total	**5000**	**100.00%**

Mortgage_flag

Mortgage_flag	Count of ID	Percent_of_total
0	3462	69.24%
1	1538	30.76%
Total	**5000**	**100.00%**

Credit Card

CreditCard	Count of ID	Percent_of_total
0	3530	70.60%
1	1470	29.40%
Total	**5000**	**100.00%**

Securities Account

Securities Account	Count of ID	Percent_of_total
0	4478	89.56%
1	522	10.44%
Total	**5000**	**100.00%**

Online

Online	Count of ID	Percent_of_total
0	2016	40.32%
1	2984	59.68%
Total	**5000**	**100.00%**

Personal Loan

Personal Loan	Count of ID	Percent_of_total
0	4520	90.40%
1	480	9.60%
Total	**5000**	**100.00%**

Education

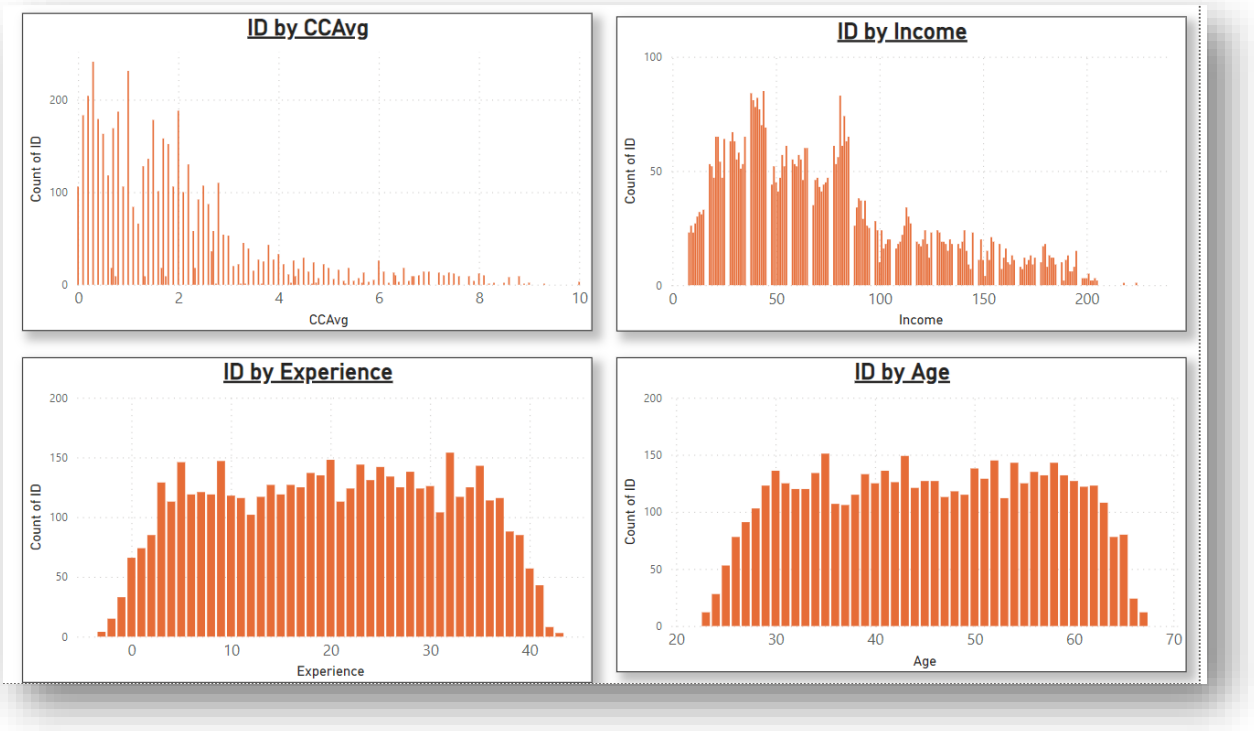
Education	Count of ID	Percent_of_total
1	2096	41.92%
2	1403	28.06%
3	1501	30.02%
Total	**5000**	**100.00%**

Family

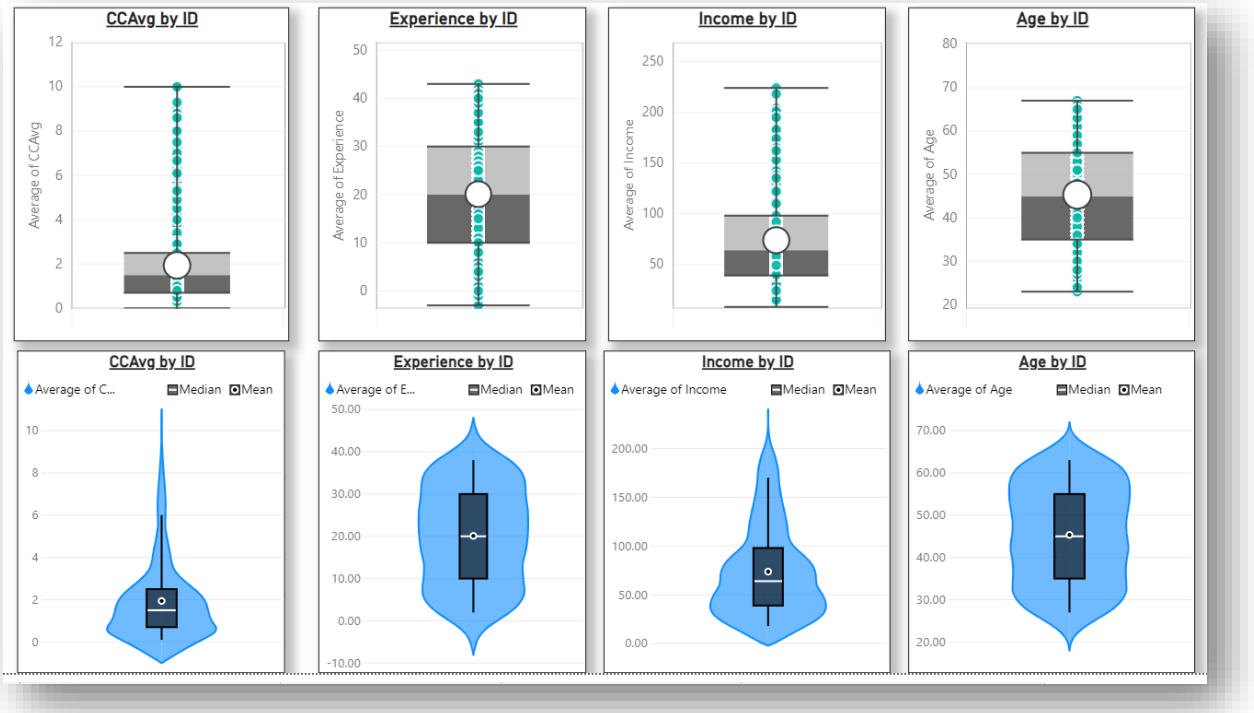
Family	Count of ID	Percent_of_total
1	1472	29.44%
2	1296	25.92%
3	1010	20.20%
4	1222	24.44%
Total	**5000**	**100.00%**

Q5) Continous Variables exploration - Identity the continuous variables and create visualizations to explore continuous variables. Write down your observations.

Result1

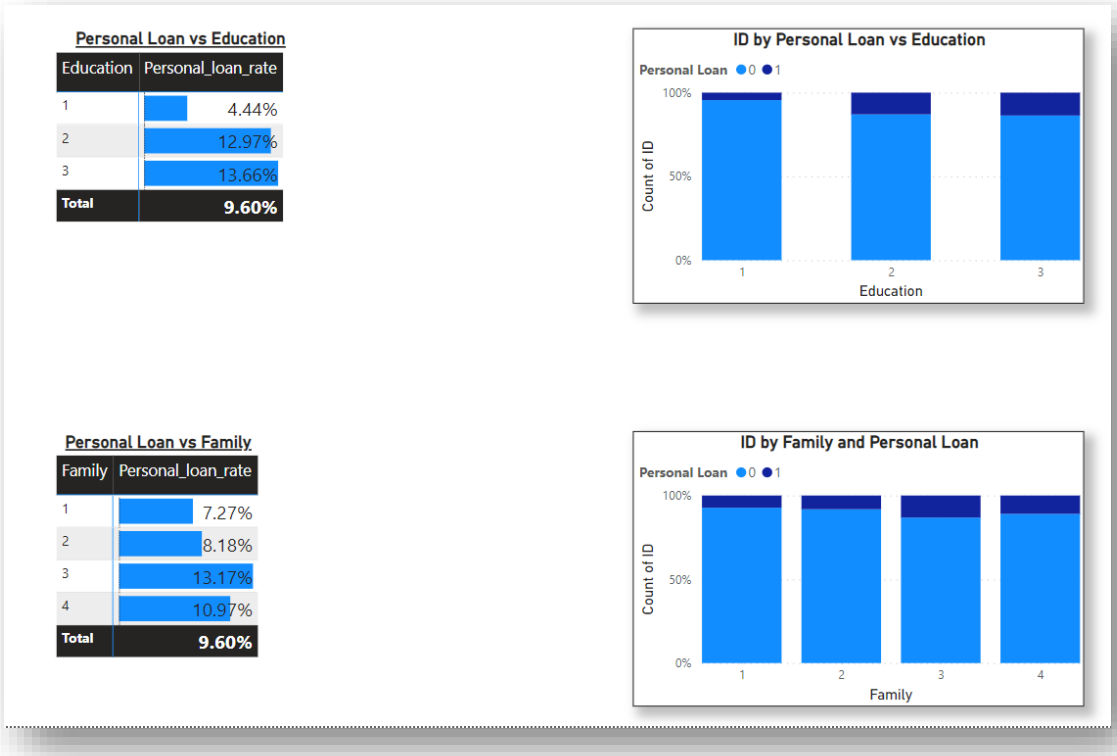


Result2



Q6) Bivariate Analysis: Perform Bi-Variate analysis. Perform analysis by taking target vs. every discrete variable, target vs. every categorical variable, and target vs. continuous variables. Write down all your findings and interesting patterns.

Results



Personal Loan vs Age

Personal Loan	Average_age
0	45.37
1	45.07
Total	**45.34**

Personal Loan vs Income

Personal Loan	Average_income
0	66.24
1	144.75
Total	**73.77**

Personal Loan vs CCAg

Personal Loan	Average_CCAvg
0	1.73
1	3.91
Total	**1.94**

Personal Loan vs Experience

Personal Loan	Average_Experience
0	20.13
1	19.84
Total	**20.10**

Q7) Create a dashboard to show multi-variate relationships. Create scenarios that lead to very high and low personal loan rates.

Results