Customer Loan Analysis

Project Overview:

Objective:

To analyze customer loan data by examining demographic factors (such as age, education, and income) alongside loan attributes (loan amount, interest rate, and tenure) in order to identify patterns, trends, and potential risk factors. This analysis aims to support data-driven decision-making for loan approvals, risk assessment, and targeted financial services.

Technology Stack:

- Data Source: CSV file (Loan Default table)

- Database: Microsoft SQL Server

- Visualization Tool: Power BI

Import Process:

- CSV files were loaded into Microsoft SQL Server.
- Tables stored in the Loan database.
- Power BI connected to SQL Server for data import and transformation.

Report Pages:

Page 1: Loan Default and Overview

- Loan Amount by Purpose.

- Average Loan by Age Group

- Average income by Employment type

- Default Rate by Employment type

- Credit Score by Income Grade

- Default Rate by Year

Page 2: Application Demographics and Financial Profile

- YoY Loan Amount Change

- Number of Loans by Education Type

- Total loans by credit Score Bins

- Average Loan amount by Age group and Marital status

DAX Used:

- ## Credit Score Bins:

```
IF(Loan_default[CreditScore] < 400, "Very Low",

IF(Loan_default[CreditScore]<450,"Low",

IF(Loan_default[CreditScore]<650,"Medium",

"High" )))
```

- ## Age Group:

```
IF('Loan_default'[Age]<=19,"Teen",

IF('Loan_default'[Age]<= 39,"Adults",

IF('Loan_default'[Age]<=59,"Middle Age Adults",

"Senior Citizens")))
```

- ## Income Grade:

```
SWITCH(
    TRUE(),
    Loan_default[Income]<30000,"Low",
    Loan_default[Income]>=30000 && Loan_default[Income]<60000,"Medium",
    Loan_default[Income]>=60000 && Loan_default[Income]<100000,"High",
    Loan_default[Income]>=100000,"V.High")
```

- ## Average Loan Amount(High Credit) :

```
AVERAGEX(FILTER('Loan_default','Loan_default'[Credit Score Bins] = "High"),
        'Loan_default'[LoanAmount])
```

- <u>**YOY Loan Amount Change**</u> :

DIVIDE(

CALCULATE(SUM('Loan_default'[LoanAmount]),

'Loan_default'[Year] = YEAR(MAX('Loan_default'[Loan_Date_DD_MM_YYYY]))) –

CALCULATE(SUM('Loan_default'[LoanAmount]),

'Loan_default'[Year] = YEAR(MAX('Loan_default'[Loan_Date_DD_MM_YYYY]))-1),

 CALCULATE(SUM(Loan_default[LoanAmount]),

'Loan_default'[Year] =

 YEAR(MAX('Loan_default'[Loan_Date_DD_MM_YYYY]))-1),0) * 100

<u>**Project Insights:**</u>

- Total Loan Amount: 33 bn
- Total Income: 21 bn
- Average Interest rate: 13.49
- Adults have highest average loan and Teen have the lowest.
- Bachelor's took higher no. of loans while Master's and PHD students are lowest.
- Home Loans are higher and Auto loans and others are lower.
- Defaulting of loan rate is highest in unemployed customers.
- Customer with less credit score has higher median loan.

Conculsions:

- More schemes such as subsidy and better interest could be provided to increase the loan number in automobile sector
- Loss by defaulting loan can be prevented by providing less loan and on higher interest on the basis of employment and it type.
- Education related schemes can be introduced for education loan and to increase the participation of teen sector.
- Providing better interest and higher loans to customers with higher credit score.