Data Preprocessing-

- Check every column of dataset for null values and duplicate values.
- In columns like first time home buyer, PPM ,Number of Borrowers X values are present which are not available values. Replaced that values with the respective mode value of column.
- First payment date and maturity date columns shows date in number format. Converted number to date using formula [DATE(INT(C2/100),MOD(C2,100),1)].
- Calculated credit range column using formula [IFS(A2<=650, "Poor", A2<=700, "Fair", A2<=750, "Good", A2<=900, "Excellent")].
- Calculated Is first time home buyer column from First time home buyer using formula [IF(“First time home buyer “="N",0,1)]
- Calculated LTV_Range from LTV column using formula[IFS(P2<=40,"Low",P2<=70,"Medium",P2<=105,"High")].
- Calculated Repay_Range using formula [IF(AF2<=48, "0-4yrs", IF(AF2<=96, "4-8yrs", IF(AF2<=144, "8-12yrs", IF(AF2<=192, "12-16yrs", "16-20yrs"))))]

Dashboard 1 -

1 .Imported data from Excel in power BI using get data option.Then check the data before loading and click on load option.

2 .First changed canvas background with image which is downloaded from internet.

3 .Then Created KPIs like Prepayment rate, delinquency rate, Total Number of Loans, Average Original UPB , Average Original Interest Rate , Average Loan Term .

Prepayment Rate=

- ```
  Current Balance =
  'finalpr dataset'[OrigUPB]/'finalpr dataset'[OrigLoanTerm]* 'finalpr
  dataset'[MonthsInRepayment]
  ```
- ```
  Prepaid Status = IF(AND('finalpr dataset'[Current Balance] < 'finalpr
  dataset'[OrigUPB] * 0.2,
  'finalpr dataset'[OrigUPB]*0.1<'finalpr dataset'[Current
  Balance]),"Prepaid","paidoff")
  ```
- ```
  Prepayment Amount = 'finalpr dataset'[OrigUPB]-'finalpr dataset'[Current Balance]
  ```
- ```
  Prepaid count = IF('finalpr dataset'[Prepaid Status]="Prepaid",1,0)
  ```
- ```
  Prepayment_Rate =
     VAR TotalRows = COUNTROWS('finalpr dataset')
     VAR countone = CALCULATE(
    COUNT('finalpr dataset'[Prepaid count]),
    'finalpr dataset'[Prepaid count] = 1)
     RETURN DIVIDE(countone, TotalRows)
  ```

Delinquency Rate = DIVIDE (CALCULATE (COUNTROWS('finalpr dataset'),'finalpr dataset'[EverDelinquent] = 1), COUNTROWS('finalpr dataset'),0)

- Total Number of Loans=count(“LoanSeqNum”)
- Average Original UPB=average(“OrigiUPB”)
- Average Original Interest Rate =average(“OrigInterestRate ”)
- Average Loan Term .=average(“OrigLoanTerm”)

4. Then created Filters using slicer option in visual types.

- Date Filter-drag field maturity date in slicer to create date filter.and format the slicer using slicer setting option.
- Loan Type Filter- drag field ProductType in slicer and did the formatting.
- Credit Range Filter-used field credit range and made the changes like font ,color, background ,borders etc.
- LTV Range Filter-used field LTV range and accordingly made changes.
  ```

- DTI Range Filter-First Created DTI range column using below formula and formatted the slicer.
- DTI_Range = IF(AND('finalpr dataset'[DTI] <= 20, 'finalpr dataset'[DTI] >= 0), "0-20", IF(AND('finalpr dataset'[DTI] <= 40, 'finalpr dataset'[DTI] >= 21), "21-40", IF(AND('finalpr dataset'[DTI] <= 60, 'finalpr dataset'[DTI] >= 41), "41-60", IF(AND('finalpr dataset'[DTI] <= 75, 'finalpr dataset'[DTI] >= 61), "61-75", "Above 75"))))
- Loan Purpose Filter- Drag and drop field Loan Purpose in slicer and did formatting.

Visualization Chart-

- Line chart -shows Deliquency Trends .It is created with MonthsDelinquent and Maturity date column.
- It shows spike for year 2028-2032 and for 2029 it is highest.
- Pie Chart- It shows percentage of Borrowers Delinquent or non delinquent.It is created with Number of borrowers and EverDelinquemt columns.
- It shows 80.22% are Non Delinquent and 19.78% are Delinquent.
- 3.Tree map- It Shows Count of OrigUPB by PropertyType and LTV Range.LTV range,OrigUPB andProperty type column.
- It shows values of different property type with different colors and size..
- 4 Stacked Bar chart- It shows Loan purpose by Property type and Repay range.
- It shows number of borrowers for different loanPurpose and property type