

BANK LOAN DATA ANALYSIS PROJECT

Project Overview:

Analysing Loan Data For A Bank Business To Gain Insights And Improve Decision-Making.

Project Objective:

Generate A comprehensive Bank Loan Dynamic Dashboard's To Analyze And Visualize Loan Data For A Bank.

Project Requirements:

- Problem Statement
- Data Source
- Software's Required

Problem Statement:

1. KPI'S Requirement
2. Chart's Requirement
3. Grid

KIP'S Requirement:

We Need To Analyze Key Performance Indicator's For Bank Loan Data To Gain Insight's Into Bank Business Performance.

A. Total Loan Applications

Need to calculate the total number of loan applications received during a specified period. Additionally, it is essential to monitor the Month-to-Date (MTD) Loan Applications and track changes Month-over-Month (MoM).

B. Total Funded Amount

Understanding the total amount of funds disbursed as loans is crucial. We also want to keep an eye on the MTD Total Funded Amount and analyse the Month-over-Month (MoM) changes in this metric

C. Total Amount Received

Tracking the total amount received from borrowers is essential for assessing the bank's cash flow and loan repayment. We should analyse the Month-to-Date (MTD) Total Amount Received and observe the Month-over-Month (MoM) changes.

D. Average Interest Rate

Calculating the average interest rate across all loans, MTD, and monitoring the Month-over-Month (MoM) variations in interest rates will provide insights into our lending portfolio's overall cost.

E. Average Debt-to-income Ratio(DTI)

Evaluating the average DTI for our borrowers helps us gauge their financial health. We need to compute the average DTI for all loans, MTD, and track Month-over-Month (MoM) fluctuations.

Good Loan v Bad Loan KPI's:

F. Good Loan

- Good Loan Application Percentage
- Good Loan Applications
- Good Loan Funded Amount
- Good Loan Total Received Amount

G. Bad Loan

- Bad Loan Application Percentage
- Bad Loan Applications
- Bad Loan Funded Amount
- Bad Loan Total Received Amount

Loan Status Grid View:

In order to gain a comprehensive overview of our lending operations and monitor the performance of loans, we aim to create a grid view report categorized by 'Loan Status.' By providing insights into metrics such as 'Total Loan Applications,' 'Total Funded Amount,' 'Total Amount Received,' 'Month-to-Date (MTD) Funded Amount,' 'MTD Amount Received,' 'Average Interest Rate,' and 'Average Debt-to-Income Ratio (DTI),' this grid view will empower us to make data-driven decisions and assess the health of our loan portfolio.

Chart's Requirement:

We Would Like To visualize Various Aspects Of Our Pizza Sales Data To Gain Insights And Understand Key Trends

H. Monthly Trends By Issue Data

Chart Type : Area Chart

To identify seasonality and long-term trends in lending activities

I. Regional Analysis By State

Chart Type : Map

To identify regions with significant lending activity and assess regional disparities

J. Loan Term Analysis

Chart Type : Donut Chart

To allow the client to understand the distribution of loans across various term lengths.

K. Employee Length Analysis

Chart Type : Bar Chart

How lending metrics are distributed among borrowers with different employment lengths, helping us assess the impact of employment history on loan applications.

L. Loan Purpose Breakdown

Chart Type : Bar Chart

Will provide a visual breakdown of loan metrics based on the stated purposes of loans, aiding in the understanding of the primary reasons borrowers seek financing.

M. Home Ownership Analysis

Chart Type : Tree Map

For a hierarchical view of how home ownership impacts loan applications and disbursements

Grid Details:

The primary objective of the Details Dashboard is to provide a comprehensive and user-friendly interface for accessing vital loan data. It will serve as a one-stop solution for users seeking detailed insights into our loan portfolio, borrower profiles, and loan performance.

Need for a comprehensive 'Details Dashboard' that provides a consolidated view of all the essential information within our loan data. This Details Dashboard aims to offer a holistic snapshot of key loan-related metrics and data points, enabling users to access critical information efficiently.

Data Source:

The Loan Data Collected From The Stakeholders Of Bank Business

Data Collection Tool : MS excel

Software's Used:

Database : MS SQL Server

BI Tool : Microsoft Power BI

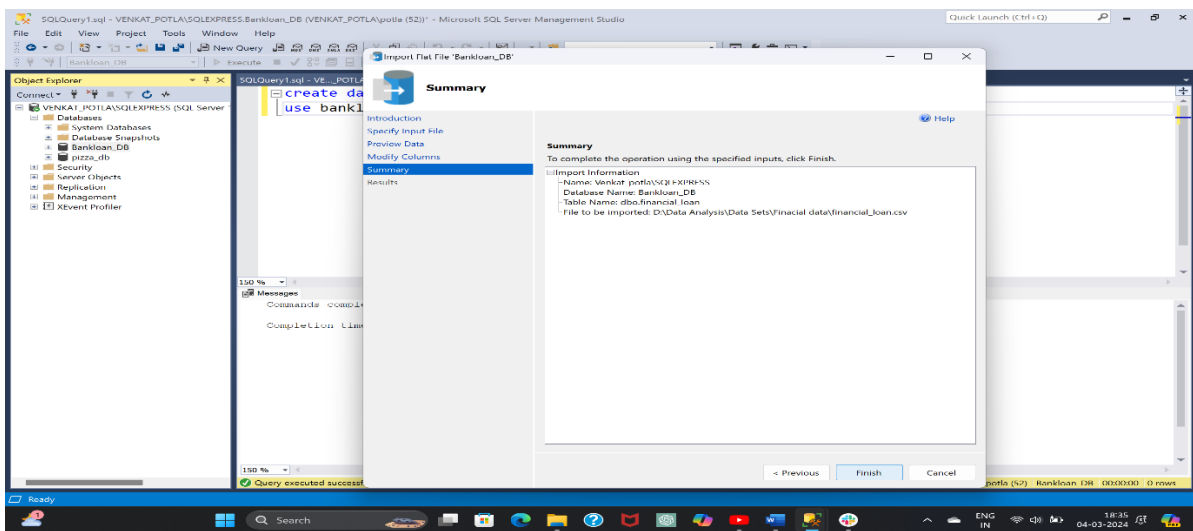
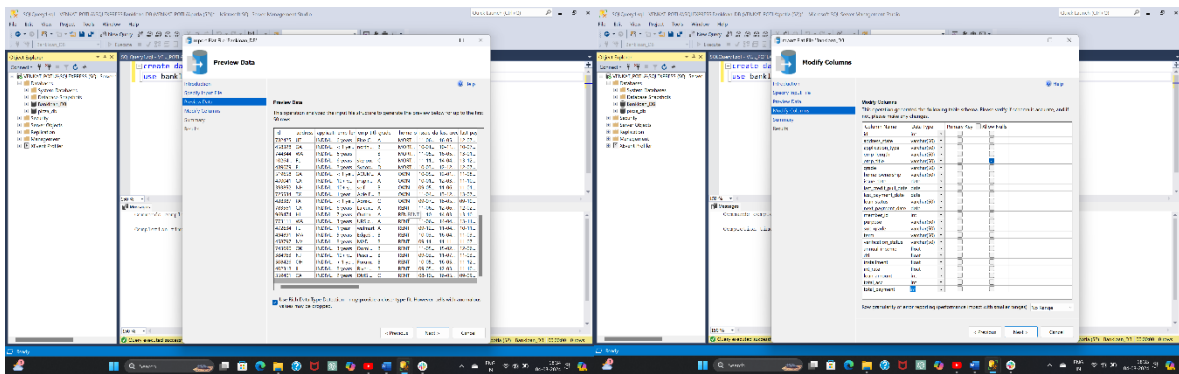
Project Process:

Step By Step Process:

1. Collecting the Data set
2. Importing Data set Into MS SQL Server Data base
3. Writing The SQL Queries To Evaluate The Values
4. Creating Report For MS SQL Server
5. Connect MS SQL Server To Power BI
6. Data Cleaning
7. Data Processing
8. Data Visualization
9. Final Dash Board

1.Collecting Data

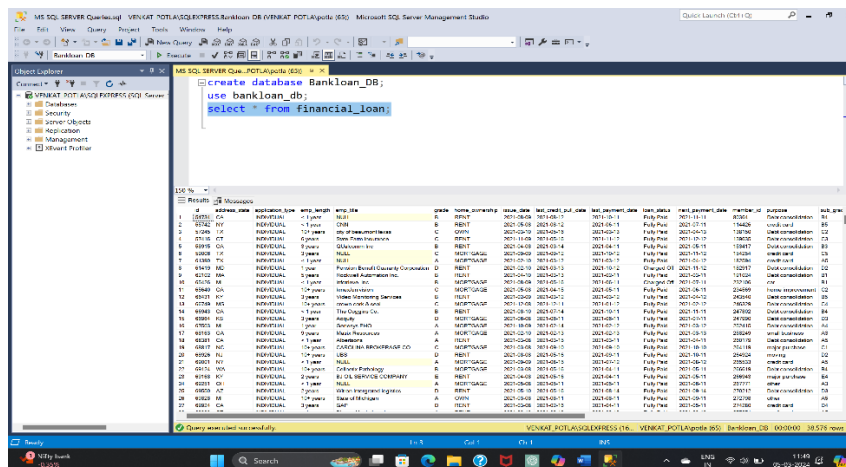
The Data set collected From The Bank Business Stakeholder's In The Form Of Excel Sheets.



- After Importing, Retrieve The table data By Writing DQL Commands.

Syntax: `Select * From Table_name;`

`Select * From Financial_loan;`



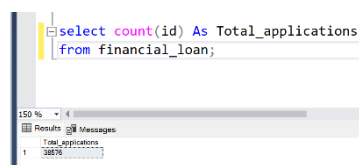
3. writing The Ms Queries To Evaluate The Values

Here, I'm Writing SQL Queries Based On the Requirements To Evaluate The Values For Dashboards.

KPI's Queries:

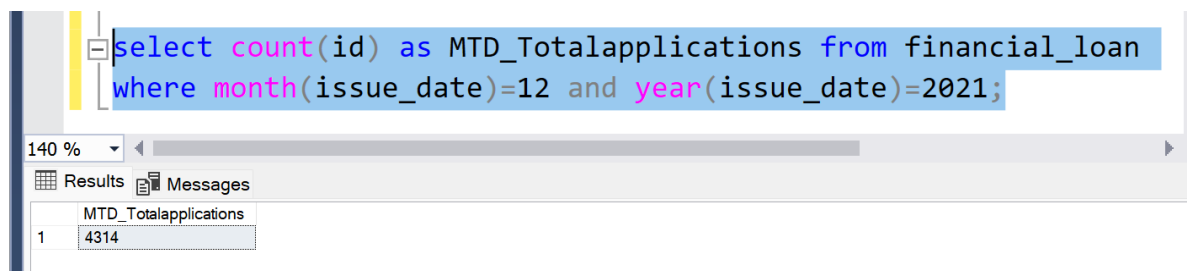
1. Total Applications

```
select count(id) As Total_applications from financial_loan;
```



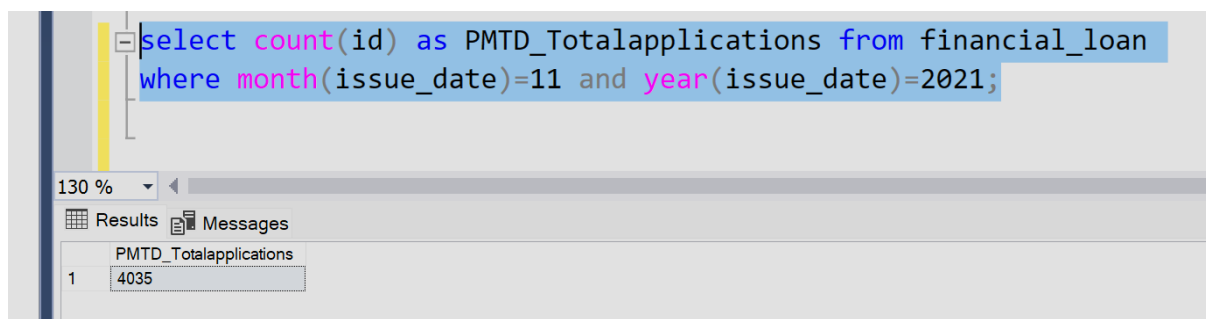
Month-To-Date Total_Applications

```
select count(id) as MTD_Totalapplications from financial_loan  
where month(issue_date)=12 and year(issue_date)=2021;
```



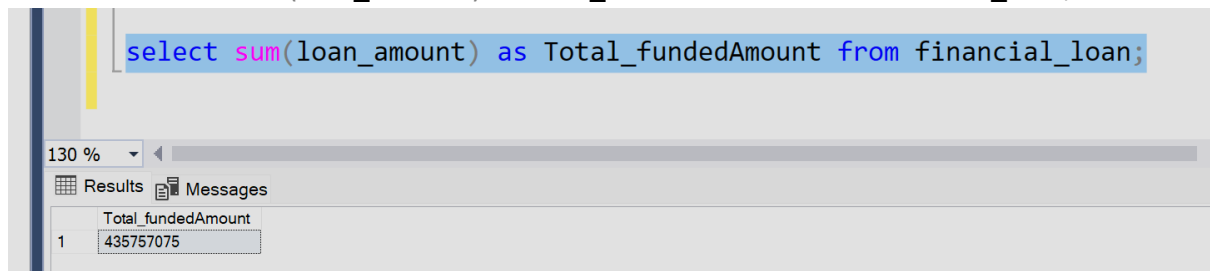
PMTD-Total Applications

```
select count(id) as PMTD_Totalapplications from financial_loan  
where month(issue_date)=11 and year(issue_date)=2021;
```



2. Total Funded Amount

```
select sum(loan_amount) as Total_fundedAmount from financial_loan;
```

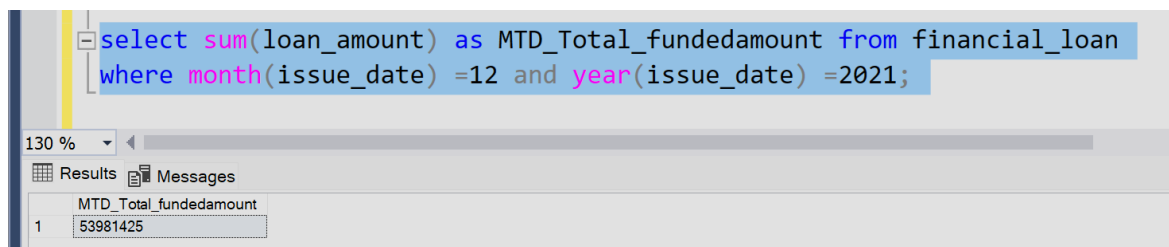


The screenshot shows a SQL query in a text editor and its results in a table. The query is `select sum(loan_amount) as Total_fundedAmount from financial_loan;`. The results table has one column, `Total_fundedAmount`, and one row with the value `435757075`.

	Total_fundedAmount
1	435757075

MTD_Total Funded Amount

```
select sum(loan_amount) as MTD_Total_fundedamount from financial_loan  
where month(issue_date) =12 and year(issue_date) =2021;
```

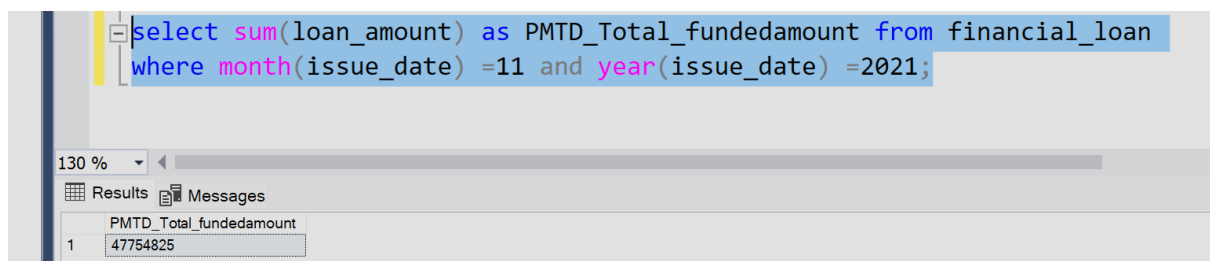


The screenshot shows a SQL query in a text editor and its results in a table. The query is `select sum(loan_amount) as MTD_Total_fundedamount from financial_loan where month(issue_date) =12 and year(issue_date) =2021;`. The results table has one column, `MTD_Total_fundedamount`, and one row with the value `53981425`.

	MTD_Total_fundedamount
1	53981425

PMTD_Total Funded Amount

```
select sum(loan_amount) as PMTD_Total_fundedamount from financial_loan  
where month(issue_date) =11 and year(issue_date) =2021;
```

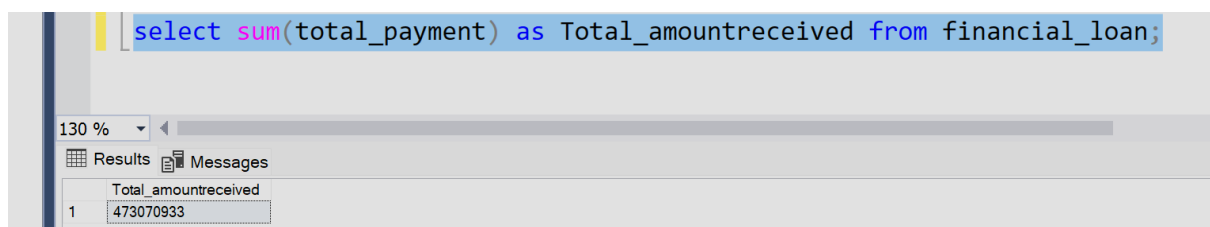


The screenshot shows a SQL query in a text editor and its results in a table. The query is `select sum(loan_amount) as PMTD_Total_fundedamount from financial_loan where month(issue_date) =11 and year(issue_date) =2021;`. The results table has one column, `PMTD_Total_fundedamount`, and one row with the value `47754825`.

	PMTD_Total_fundedamount
1	47754825

3. Total Amount Received

```
select sum(total_payment) as Total_amountreceived from financial_loan;
```

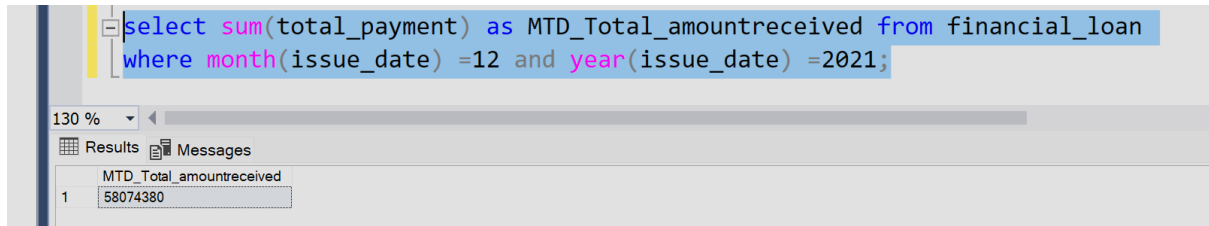


The screenshot shows a SQL query in a text editor and its results in a table. The query is `select sum(total_payment) as Total_amountreceived from financial_loan;`. The results table has one column, `Total_amountreceived`, and one row with the value `473070933`.

	Total_amountreceived
1	473070933

MTD Total amount Received

```
select sum(total_payment) as MTD_Total_amountreceived from financial_loan
where month(issue_date) =12 and year(issue_date) =2021;
```

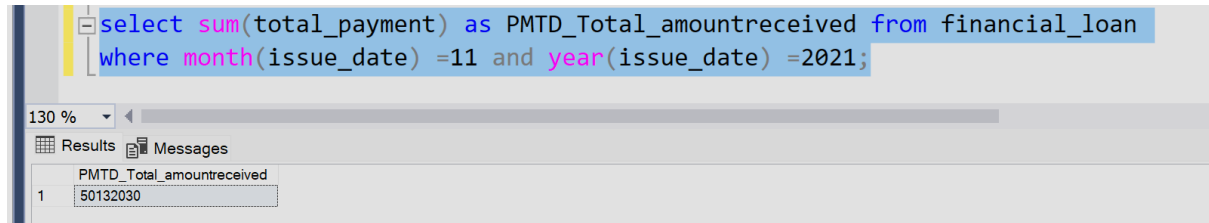


The screenshot shows a SQL query editor with the query: `select sum(total_payment) as MTD_Total_amountreceived from financial_loan where month(issue_date) =12 and year(issue_date) =2021;`. Below the editor, the 'Results' tab is active, displaying a single row with the value 58074380 for the column MTD_Total_amountreceived.

	MTD_Total_amountreceived
1	58074380

PMTD Total Amount Received

```
select sum(total_payment) as PMTD_Total_amountreceived from financial_loan
where month(issue_date) =11 and year(issue_date) =2021;
```

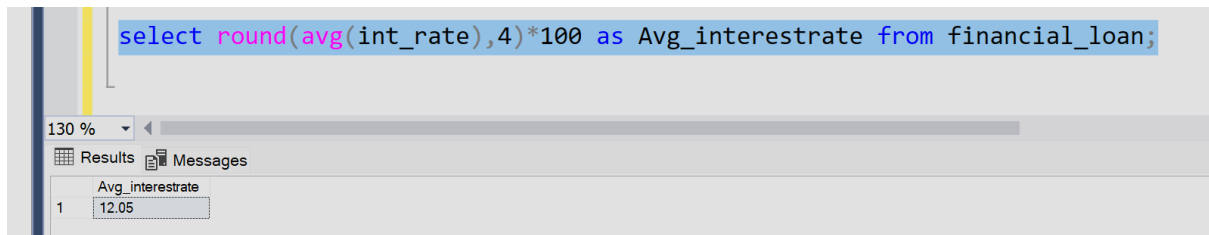


The screenshot shows a SQL query editor with the query: `select sum(total_payment) as PMTD_Total_amountreceived from financial_loan where month(issue_date) =11 and year(issue_date) =2021;`. Below the editor, the 'Results' tab is active, displaying a single row with the value 50132030 for the column PMTD_Total_amountreceived.

	PMTD_Total_amountreceived
1	50132030

4. Average Interest Rate

```
select round(avg(int_rate),4)*100 as Avg_interestrates from financial_loan;
```

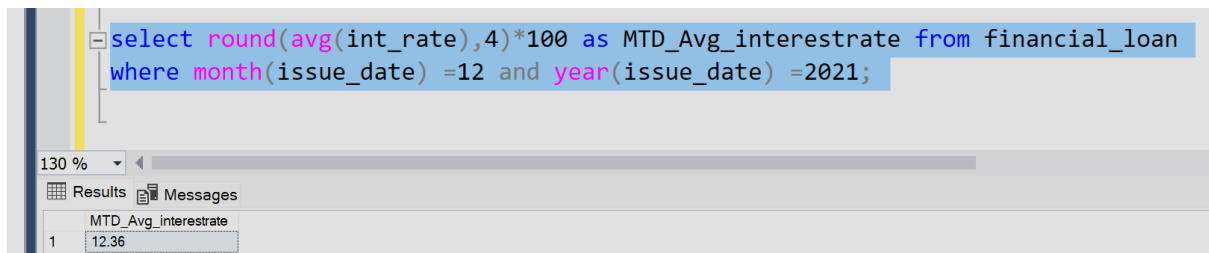


The screenshot shows a SQL query editor with the query: `select round(avg(int_rate),4)*100 as Avg_interestrates from financial_loan;`. Below the editor, the 'Results' tab is active, displaying a single row with the value 12.05 for the column Avg_interestrates.

	Avg_interestrates
1	12.05

MTD_Avg Interest rate

```
select round(avg(int_rate),4)*100 as MTD_Avg_interestrates from financial_loan
where month(issue_date) =12 and year(issue_date) =2021;
```

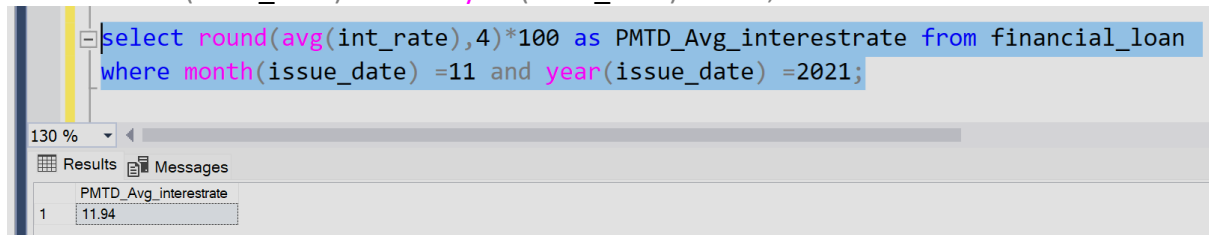


The screenshot shows a SQL query editor with the query: `select round(avg(int_rate),4)*100 as MTD_Avg_interestrates from financial_loan where month(issue_date) =12 and year(issue_date) =2021;`. Below the editor, the 'Results' tab is active, displaying a single row with the value 12.36 for the column MTD_Avg_interestrates.

	MTD_Avg_interestrates
1	12.36

PMTD_Avg Interest Rate

```
select round(avg(int_rate),4)*100 as PMTD_Avg_interestrates from financial_loan
where month(issue_date) =11 and year(issue_date) =2021;
```

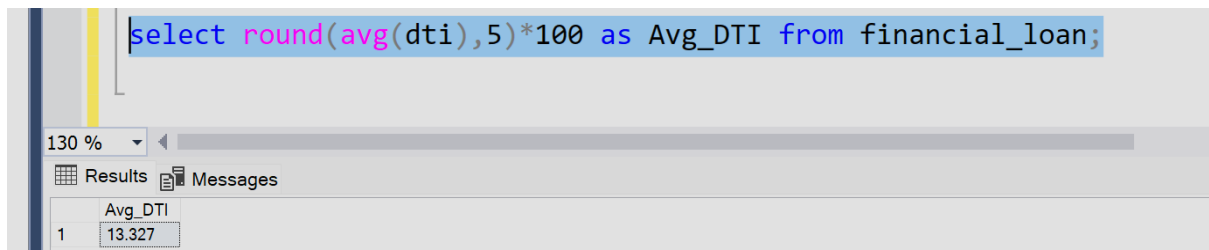


The screenshot shows a SQL query editor with the query: `select round(avg(int_rate),4)*100 as PMTD_Avg_interestrates from financial_loan where month(issue_date) =11 and year(issue_date) =2021;`. Below the editor, the 'Results' tab is active, displaying a single row with the value 11.94 under the column header PMTD_Avg_interestrates.

PMTD_Avg_interestrates
11.94

5. Average Debt-To-Income Ratio(DTI)

```
select round(avg(dti),5)*100 as Avg_DTI from financial_loan;
```

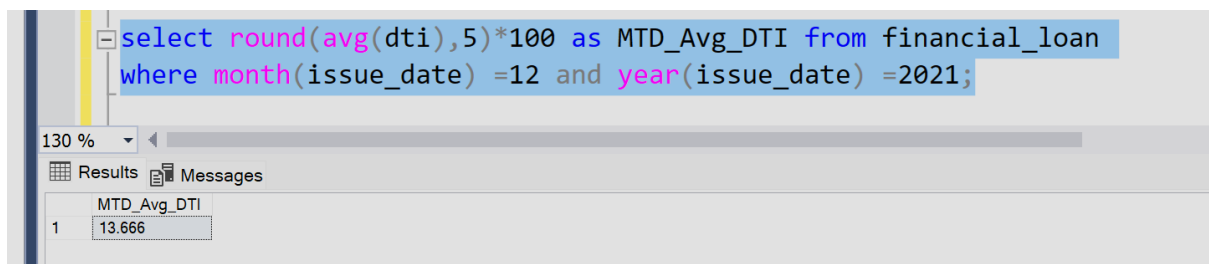


The screenshot shows a SQL query editor with the query: `select round(avg(dti),5)*100 as Avg_DTI from financial_loan;`. Below the editor, the 'Results' tab is active, displaying a single row with the value 13.327 under the column header Avg_DTI.

Avg_DTI
13.327

MTD Average Debt-To-Income Ratio

```
select round(avg(dti),5)*100 as MTD_Avg_DTI from financial_loan
where month(issue_date) =12 and year(issue_date) =2021;
```



The screenshot shows a SQL query editor with the query: `select round(avg(dti),5)*100 as MTD_Avg_DTI from financial_loan where month(issue_date) =12 and year(issue_date) =2021;`. Below the editor, the 'Results' tab is active, displaying a single row with the value 13.666 under the column header MTD_Avg_DTI.

MTD_Avg_DTI
13.666

PMTD Average Debt_To_Income Ratio

```
select round(avg(dti),5)*100 as PMTD_Avg_DTI from financial_loan
where month(issue_date) =11 and year(issue_date) =2021;
```

The screenshot shows a SQL query in a query editor and its results in a table. The query calculates the average Debt-to-Income (DTI) ratio for loans issued in November 2021, rounded to 5 decimal places and multiplied by 100. The result is 13.303.

```
select round(avg(dti),5)*100 as PMTD_Avg_DTI from financial_loan
where month(issue_date) =11 and year(issue_date) =2021;
```

	PMTD_Avg_DTI
1	13.303

Good Loan vs Bad Loan KPI's

Good Loan KPI's

1. Good Loan Application Percentage

```
select
(count(case when loan_status ='Fully Paid' or loan_status ='Current' Then id end) *100)
/
count(id) as Good_loanpercentage from financial_loan;
```

The screenshot shows a SQL query in a query editor and its results in a table. The query calculates the percentage of good loan applications (Fully Paid or Current) out of the total number of applications. The result is 86.

```
select
(count(case when loan_status ='Fully Paid' or loan_status ='Current' Then id end) *100)
/
count(id) as Good_loanpercentage from financial_loan;
```

	Good_loanpercentage
1	86

2. Good Loan Applications

```
select count(id) As Good_loanapplications from financial_loan where
loan_status in('Fully Paid','Current');
```

The screenshot shows a SQL query in a query editor and its results in a table. The query counts the number of good loan applications (Fully Paid or Current). The result is 33243.

```
select count(id) As Good_loanapplications from financial_loan where
loan_status in('Fully Paid','Current');
```

	Good_loanapplications
1	33243

3. Good Loan Founded Amount

```
select sum(loan_amount) as Good_loan_Foundedamount from
financial_loan where loan_status in('Fully Paid','Current');
```

```
select sum(loan_amount) as Good_loan_Foundedamount from financial_loan where loan_status in('Fully Paid','Current');
```

	Good_loan_Foundedamount
1	370224850

4. Good Loan Total Received amount

```
select sum(total_payment) as Good_loan_TotalReceivedamount from financial_loan where loan_status in('Fully Paid','Current');
```

```
select sum(total_payment) as Good_loan_TotalReceivedamount from financial_loan where loan_status in('Fully Paid','Current');
```

	Good_loan_TotalReceivedamount
1	435786170

BAD Loan KPI's

1. Bad Loan Application Percentage

```
select
(count(case when loan_status = 'Charged off' Then id end) * 100)
/
count(id) as Bad_loanpercentage from financial_loan;
```

```
select
(count(case when loan_status = 'Charged off' Then id end) * 100)
/
count(id) as Bad_loanpercentage from financial_loan;
```

	Bad_loanpercentage
1	13

2. Bad Loan Applications

```
select count(id) As Bad_loanapplications from financial_loan where loan_status = 'Charged off';
```

```
select count(id) As Bad_loanapplications from financial_loan where loan_status = 'Charged off';
```

120 %	Results	Messages
	Bad_loanapplications	
1	5333	

3.Bad Loan Founded Amount

```
select sum(loan_amount) as Bad_loan_Foundedamount from financial_loan where loan_status = 'Charged off';
```

```
select sum(loan_amount) as Bad_loan_Foundedamount from financial_loan where loan_status = 'Charged off';
```

120 %	Results	Messages
	Bad_loan_Foundedamount	
1	65532225	

4.Bad Loan Total Received amount

```
select sum(total_payment) as Bad_loan_TotalReceivedamount from financial_loan where loan_status = 'Charged off';
```

```
select sum(total_payment) as Bad_loan_TotalReceivedamount from financial_loan where loan_status = 'Charged off';
```

120 %	Results	Messages
	Bad_loan_TotalReceivedamount	
1	37284763	

Loan Status Grid View:

```
select loan_status, count(id) as Total_loan_applications, sum(total_payment) as Total_amountreceived, sum(loan_amount) as Total_fundedamount, avg(int_rate) as Interest_rate, avg(dti*100) as DTI from financial_loan group by Loan_status;
```

```

select loan_status,
count(id) as Total_loan_applications,sum(total_payment) as Total_amountreceived,
sum(loan_amount) as Total_fundedamount,avg(int_rate) as Interest_rate,
avg(dti*100) as DTI from financial_loan
group by Loan_status;

```

	loan_status	Total_loan_applications	Total_amountreceived	Total_fundedamount	Interest_rate	DTI
1	Fully Paid	32145	411586256	351358350	0.116410707918092	13.1673507557434
2	Charged Off	5333	37284763	65532225	0.138785749318289	14.0047328005517
3	Current	1098	24199914	18866500	0.150993260800947	14.7243442736843

MTD Loan status Grid View

```

select loan_status,sum(total_payment) as MTD_Total_Amountreceived,
sum(loan_amount) as MTD_Total_Fundedamount from financial_loan where
month(issue_date) =12 group by Loan_status;

```

```

select loan_status,sum(total_payment) as MTD_Total_Amountreceived,
sum(loan_amount) as MTD_Total_Fundedamount from financial_loan
where month(issue_date) =12
group by Loan_status;

```

	loan_status	MTD_Total_Amountreceived	MTD_Total_Fundedamount
1	Fully Paid	47815851	41302025
2	Charged Off	5324211	8732775
3	Current	4934318	3946625

PMTD Loan status Grid View

```

select loan_status,sum(total_payment) as PMTD_Total_Amountreceived,
sum(loan_amount) as PMTD_Total_Fundedamount from financial_loan where
month(issue_date) =11 group by Loan_status;

```

```
select loan_status,sum(total_payment) as PMTD_Total_Amountreceived,
sum(loan_amount) as PMTD_Total_Fundedamount from financial_loan
where month(issue_date) =11
group by Loan_status;
```

Results			
	loan_status	PMTD_Total_Amountreceived	PMTD_Total_Fundedamount
1	Fully Paid	42420451	37375675
2	Charged Off	3994065	7511175
3	Current	3717514	2867975

Charts Queries:

1.Monthly Trends By Issue Date

```
select month(issue_date) as Month_number,datetime(month ,issue_date)as
Month_name,
count(id) as Total_loanApplications,
sum(total_payment) as Total_amountreceived,sum(loan_amount) as Total_fundedamount
from financial_loan group by datetime(month,issue_date),month(issue_date)
order by month(issue_date);
```

```
select month(issue_date) as Month_number,datetime(month ,issue_date)as Month_name,
count(id) as Total_loanApplications,
sum(total_payment) as Total_amountreceived,sum(loan_amount) as Total_fundedamount
from financial_loan group by datetime(month,issue_date),month(issue_date)
order by month(issue_date);
```

Results					
	Month_number	Month_name	Total_loanApplications	Total_amountreceived	Total_fundedamount
1	1	January	2332	27578836	25031650
2	2	February	2279	27717745	24647825
3	3	March	2627	32264400	28875700
4	4	April	2755	32495533	29800800
5	5	May	2911	33750523	31738350
6	6	June	3184	36164533	34161475
7	7	July	3366	38827220	35813900
8	8	August	3441	42682218	38149600
9	9	September	3536	43983948	40907725
10	10	October	3796	49399567	44893800
11	11	November	4035	50132030	47754825
12	12	December	4314	58074380	53981425

2. Regional Analysis by State

```
select Address_state as state,count(id) as Total_loanApplications,
sum(total_payment) as Total_amountreceived,sum(loan_amount) as Total_fundedamount
from financial_loan group by Address_state order by sum(loan_amount) desc;
```

MS SQL SERVER Queries.sql VENKAT_POTLA\SQLEXPRESS.Bankloan_DB (VENKAT_POTLA\potla (68)) Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

Bankloan_DB Execute

MS SQL SERVER Que...POTLA\potla (68) * X

---2. Regional Analysis by State

```

select Address_state as State,
count(id) as Total_loanApplications,
sum(total_payment) as Total_amountreceived, sum(loan_amount) as Total_fundedamount
from financial_loan group by Address_state
order by sum(loan_amount) desc;

```

Results Messages

	State	Total_loanApplications	Total_amountreceived	Total_fundedamount
1	CA	6994	8591234	76484125
2	NY	3701	46108181	42077050
3	TX	2664	34392715	31208650
4	FL	2773	31601908	20046125
5	NJ	1822	23425159	21657475
6	IL	1486	18875941	17124225
7	VA	1375	17711443	15982650
8	PA	1482	17482908	15828525
9	GA	1355	16728040	15480325
10	MA	1310	16676279	15001000
11	OH	1188	14330148	12991375
12	MD	1027	12985170	11911400
13	AZ	833	10041986	9206000
14	CO	770	9845810	8976000
15	WA	805	9531739	8855525
16	NC	759	9534813	8787575
17	CT	730	9357612	8435575
18	MI	685	8543660	7829900
19	MO	660	7952732	7151175
20	MN	682	6750744	6302800
21	NV	482	5451443	5307375
22	SC	454	5462458	5080475
23	WI	446	5485161	5070450
24	AL	432	5492272	4949225
25	OR	436	4966903	4720150
26	LA	426	5001160	4488900
27	WY	320	3762530	3504100
28	OK	293	3712649	3368725
29	KS	260	3247394	2872325
30	UT	252	2852412	2849225
31	DC	214	2821854	2652350
32	AR	236	2777875	2528700
33	NH	161	2101386	1917900

Query executed successfully.

VENKAT_POTLA\SQLEXPRESS (16... VENKAT_POTLA\potla (68) Bankloan_DB 00:00:00 50 rows

Ready 35°C Sunny

Ln 156 Col 1 Ch 1 INS

3.Loan Term Analysis

```

select term as Term, count(id) as Total_loanApplications, sum(total_payment) as
Total_amountreceived, sum(loan_amount) as Total_fundedamount from financial_loan
group by term
order by term;

```

```

select term as Term,
count(id) as Total_loanApplications,
sum(total_payment) as Total_amountreceived,
sum(loan_amount) as Total_fundedamount
from financial_loan group by term
order by term;

```

Results Messages

	Term	Total_loanApplications	Total_amountreceived	Total_fundedamount
1	36 months	28237	294709458	273041225
2	60 months	10339	178361475	162715850

4. Employee Length Analysis

```
select emp_length as Employee_Length ,count(id) as Total_loanApplications,  
sum(total_payment) as Total_amountreceived,sum(loan_amount) as Total_fundedamount  
from financial_loan group by emp_length order by emp_length;
```

```
select emp_length as Employee_Length ,count(id) as Total_loanApplications,  
sum(total_payment) as Total_amountreceived,sum(loan_amount) as Total_fundedamount  
from financial_loan group by emp_length  
order by emp_length;
```

120 %

Results Messages

	Employee_Length	Total_loanApplications	Total_amountreceived	Total_fundedamount
1	< 1 year	4575	47545011	44210625
2	1 year	3229	35498348	32883125
3	10+ years	8870	125871616	116115950
4	2 years	4382	49206961	44967975
5	3 years	4088	47551832	43937850
6	4 years	3428	40964850	37600375
7	5 years	3273	40397571	36973625
8	6 years	2228	27908658	25612650
9	7 years	1772	22584136	20811725
10	8 years	1476	19025777	17558950
11	9 years	1255	16516173	15084225

5. Loan Purpose Breakdown

```
select purpose ,count(id) as Total_loanApplications,  
sum(total_payment) as Total_amountreceived,sum(loan_amount) as Total_fundedamount  
from financial_loan group by purpose order by count(id) desc;
```

```
select purpose ,count(id) as Total_loanApplications,  
sum(total_payment) as Total_amountreceived,sum(loan_amount) as Total_fundedamount  
from financial_loan group by purpose  
order by count(id) desc;
```

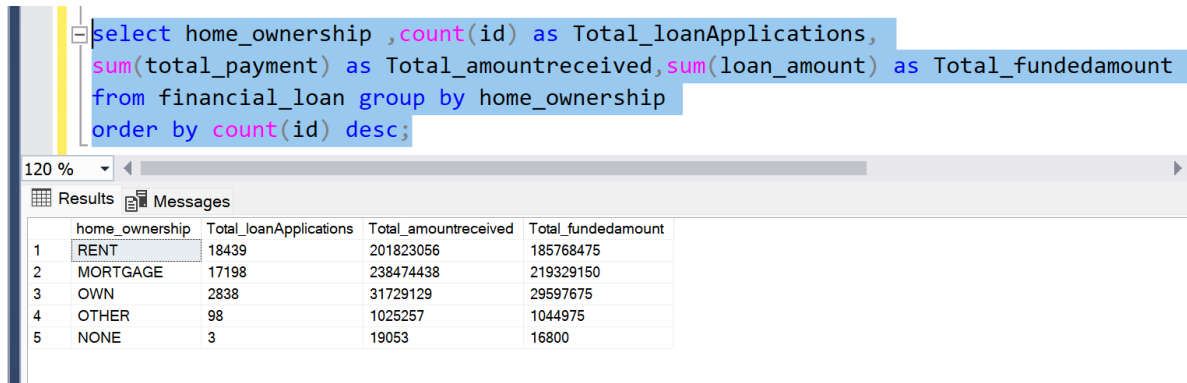
120 %

Results Messages

	purpose	Total_loanApplications	Total_amountreceived	Total_fundedamount
1	Debt consolidation	18214	253801871	232459675
2	credit card	4998	65214084	58885175
3	other	3824	33289676	31156750
4	home improvement	2876	36380930	33350775
5	major purchase	2110	18676927	17251600
6	small business	1776	23814817	24123100
7	car	1497	11324914	10223575
8	wedding	928	10266856	9225800
9	medical	667	5851372	5533225
10	moving	559	3999899	3748125
11	house	366	5185538	4824925
12	vacation	352	2116738	1967950
13	educational	315	2248380	2161650
14	renewable_energy	94	898931	845750

6. Home Ownership Analysis

```
select home_ownership ,count(id) as Total_loanApplications,sum(total_payment)
as Total_amountreceived,sum(loan_amount) as Total_fundedamount from financial_loan
group by home_ownership
order by count(id) desc;
```



home_ownership	Total_loanApplications	Total_amountreceived	Total_fundedamount
1 RENT	18439	201823056	185768475
2 MORTGAGE	17198	238474438	219329150
3 OWN	2838	31729129	29597675
4 OTHER	98	1025257	1044975
5 NONE	3	19053	16800

Grid Details:

Grid View:

```
select * from financial_loan;
```

MS SQL SERVER Queryes-1 - VENKAT.POTLA\SQLEXPRESS\Sankilao,DB (68) - Microsoft SQL Server Management Studio

FileEditViewQueryProjectToolsWindowHelp

Object Explorer

VENKAT.POTLA\SQLEXPRESS\Sankilao,DB (68)DatabasesSecurityServer ObjectsReplicationManagementXEvent Profiles

120 %

ResultsMessages

```
order by count(id) desc;

--Grid View

select * from financial_loan;
```

id	address_state	application_type	emp_length	emp_title	grade	home_ownership	issue_date	last_credit_pull_date	last_payment_date	loan_status	next_payment_date	member_id	purpose	sub_grade	term	verification_status	
1	54734	CA	INDIVIDUAL	< 1 year	NULL	B	RENT	2021-08-09	2021-08-12	2021-10-11	Fully Paid	2021-11-11	80394	Debt consolidation	B4	36 months	Verified
2	55742	NY	INDIVIDUAL	< 1 year	CNI	B	RENT	2021-08-08	2021-08-12	2021-06-11	Fully Paid	2021-07-11	114426	credit card	B5	36 months	Not Verified
3	57245	TX	INDIVIDUAL	10+ years	city of beaumont texas	C	OWN	2021-03-10	2021-05-16	2021-03-13	Fully Paid	2021-04-13	138150	Debt consolidation	C2	36 months	Not Verified
4	57416	CT	INDIVIDUAL	6 years	State Farm Insurance	C	RENT	2021-11-09	2021-05-16	2021-11-12	Fully Paid	2021-12-12	139635	Debt consolidation	C3	36 months	Not Verified
5	58915	CA	INDIVIDUAL	3 years	Qualcomm Inc	B	RENT	2021-04-08	2021-03-14	2021-04-11	Fully Paid	2021-05-11	153417	Debt consolidation	B3	36 months	Not Verified
6	59006	TX	INDIVIDUAL	3 years	NULL	C	MORTGAGE	2021-09-09	2021-09-12	2021-10-12	Fully Paid	2021-11-12	154254	credit card	C5	36 months	Not Verified
7	61390	TX	INDIVIDUAL	< 1 year	NULL	A	MORTGAGE	2021-02-10	2021-03-12	2021-03-12	Fully Paid	2021-04-12	162594	credit card	A5	36 months	Not Verified
8	61419	MD	INDIVIDUAL	1 year	Pension Benefit Guaranty Corporation	D	RENT	2021-02-10	2021-03-13	2021-10-12	Charged Off	2021-11-12	182971	Debt consolidation	D2	36 months	Not Verified
9	62102	MA	INDIVIDUAL	5 years	Rockwell Automation Inc.	B	RENT	2021-04-10	2021-03-13	2021-02-11	Fully Paid	2021-03-11	191024	Debt consolidation	B1	36 months	Not Verified
10	64426	MI	INDIVIDUAL	< 1 year	Indevco, Inc.	B	MORTGAGE	2021-08-09	2021-05-16	2021-06-11	Charged Off	2021-07-11	232106	car	B1	36 months	Not Verified
11	65640	CA	INDIVIDUAL	10+ years	Ikea/Univision	C	MORTGAGE	2021-05-08	2021-04-15	2021-05-11	Fully Paid	2021-06-11	234569	home improvement	C2	36 months	Not Verified
12	66431	KY	INDIVIDUAL	3 years	Video Monitoring Services	B	RENT	2021-02-09	2021-03-12	2021-03-12	Fully Paid	2021-04-12	243540	Debt consolidation	B5	36 months	Not Verified
13	66749	MS	INDIVIDUAL	10+ years	crown cork & seal	C	MORTGAGE	2021-12-08	2021-12-11	2021-01-12	Fully Paid	2021-02-12	246329	Debt consolidation	C4	36 months	Not Verified
14	66943	CA	INDIVIDUAL	< 1 year	The Ciggins Co.	B	RENT	2021-08-10	2021-07-14	2021-10-11	Fully Paid	2021-11-11	247802	Debt consolidation	B4	60 months	Not Verified
15	66964	KS	INDIVIDUAL	3 years	Acuity	D	MORTGAGE	2021-06-08	2021-06-11	2021-06-11	Fully Paid	2021-07-11	247990	Debt consolidation	D3	36 months	Not Verified
16	67503	MI	INDIVIDUAL	1 year	Genesys PHO	A	MORTGAGE	2021-10-09	2021-02-14	2021-02-12	Fully Paid	2021-03-12	252415	Debt consolidation	A4	36 months	Not Verified
17	68183	GA	INDIVIDUAL	8 years	Matrix Resources	A	MORTGAGE	2021-02-10	2021-02-13	2021-02-13	Fully Paid	2021-03-13	258249	small business	A3	36 months	Not Verified
18	68381	CA	INDIVIDUAL	< 1 year	Albertsons	A	RENT	2021-03-08	2021-03-15	2021-03-11	Fully Paid	2021-04-11	260179	Debt consolidation	A5	36 months	Not Verified
19	68817	NC	INDIVIDUAL	10+ years	CAROLINA BROKERAGE CO	C	MORTGAGE	2021-03-08	2021-09-10	2021-09-10	Fully Paid	2021-10-10	264119	major purchase	C1	36 months	Not Verified
20	68826	NJ	INDIVIDUAL	10+ years	USB	D	RENT	2021-08-08	2021-05-16	2021-09-11	Fully Paid	2021-10-11	264924	moving	D2	36 months	Verified
21	69001	NY	INDIVIDUAL	< 1 year	NULL	A	MORTGAGE	2021-09-09	2021-08-16	2021-07-12	Fully Paid	2021-08-12	265533	credit card	A5	36 months	Not Verified
22	69134	WA	INDIVIDUAL	10+ years	Cellnetix Pathology	B	MORTGAGE	2021-03-08	2021-05-16	2021-04-11	Fully Paid	2021-05-11	266619	Debt consolidation	B4	36 months	Not Verified
23	69188	KY	INDIVIDUAL	2 years	BJ OIL SERVICE COMPANY	E	RENT	2021-04-08	2021-05-16	2021-04-11	Fully Paid	2021-05-11	266943	major purchase	E4	36 months	Verified
24	69231	OH	INDIVIDUAL	< 1 year	NULL	A	MORTGAGE	2021-05-08	2021-05-11	2021-05-11	Fully Paid	2021-06-11	267771	other	A3	36 months	Not Verified
25	69550	AZ	INDIVIDUAL	2 years	Wilson Integrated logistics	D	RENT	2021-05-10	2021-05-16	2021-08-14	Fully Paid	2021-09-14	270212	Debt consolidation	D3	60 months	Not Verified
26	69828	MI	INDIVIDUAL	10+ years	State of Michigan	A	OWN	2021-03-08	2021-08-11	2021-08-11	Fully Paid	2021-09-11	272798	other	A5	36 months	Not Verified
27	69924	CA	INDIVIDUAL	3 years	GAP	D	RENT	2021-03-08	2021-02-16	2021-04-11	Fully Paid	2021-05-11	274280	credit card	D4	36 months	Not Verified
28	69990	CT	INDIVIDUAL	< 1 year	Diego North America	A	RENT	2021-02-10	2021-02-13	2021-02-13	Fully Paid	2021-03-13	275534	credit card	A5	36 months	Not Verified
29	70348	IL	INDIVIDUAL	4 years	City Lights LTD	C	RENT	2021-03-08	2021-05-16	2021-06-10	Fully Paid	2021-06-10	280311	Debt consolidation	C5	36 months	Not Verified
30	76597	NY	INDIVIDUAL	1 year	Ping Interactive	B	MORTGAGE	2021-07-07	2021-07-10	2021-07-10	Fully Paid	2021-08-10	76583	other	B2	36 months	Not Verified
31	84918	MA	INDIVIDUAL	10+ years	Rieviera Public Schools	A	MORTGAGE	2021-09-07	2021-06-07	2021-04-08	Fully Paid	2021-05-08	84914	other	A2	36 months	Not Verified
32	87023	MA	INDIVIDUAL	< 1 year	Evergreen Center	E	OWN	2021-06-07	2021-06-10	2021-06-10	Fully Paid	2021-07-10	86999	Debt consolidation	E2	36 months	Not Verified
33	88554	NY	INDIVIDUAL	4 years	Rail Europe Group	A	RENT	2021-08-07	2021-05-07	2021-03-08	Fully Paid	2021-04-08	70699	house	A2	36 months	Not Verified

Query executed successfully.

VENKAT.POTLA\SQLEXPRESS (16) - VENKAT.POTLA\potla (68) - Bankilao,DB 00:00:00 38,576 rows

Ready

Ln 196Col 1Ch 1INS

RSE smicap -1.90%

Search

IN

ENG

15:42

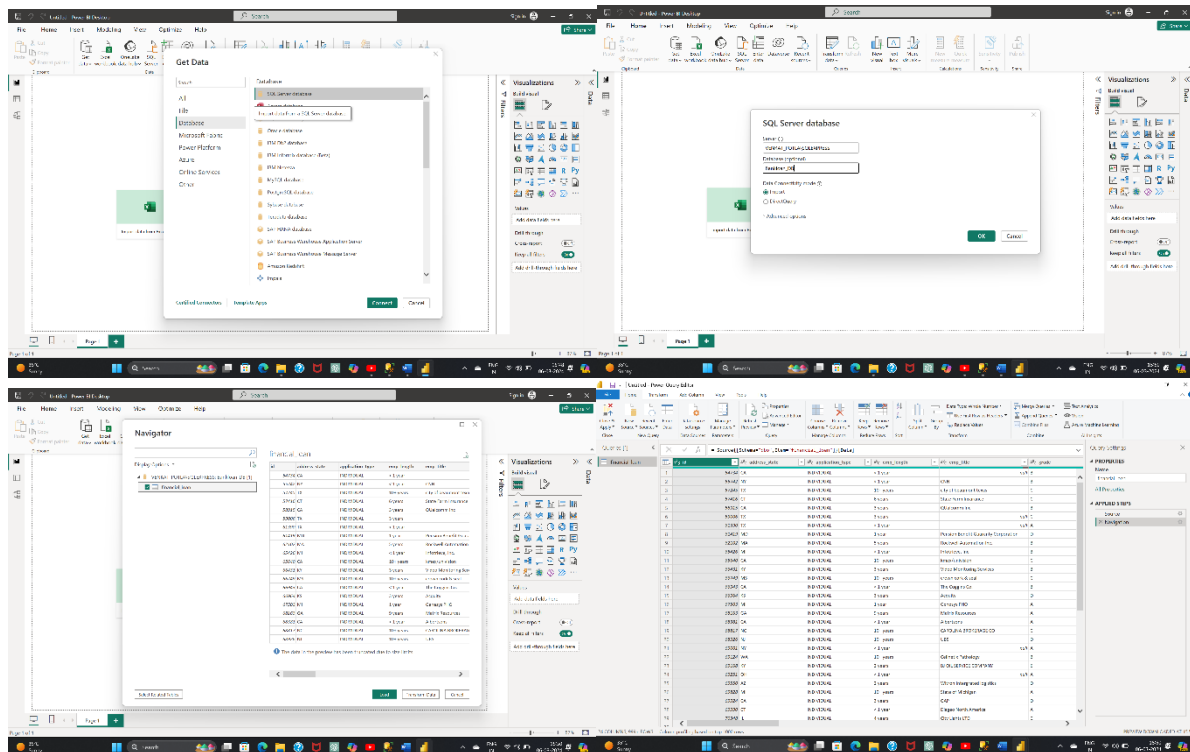
06-03-2024

4. Creating Report For MS SQL Server

Now, Save All The Queries That We Wrote To Evaluate the Values With The Dashboards. Create a Report For MS SQL Queries

5. Connect MS SQL Server With Power BI

- For That, Open Power BI, Go to Get Data and Select MS SQL Database Then, Make a Connection With MYSQL Database



- After Completion of Connection we can Load Or Transform Data Based On Requirement

6. Data Cleaning & Processing

- After Loading Data Into PowerBI By Using The Power Query Editor, We Perform DAX(Data Analysis Express) For Data cleaning and Processing
- These Are Some Of DAX Formulas written for Data Visualization

DAX Formula's:

1. Date Table

Date Table =
`CALENDAR(min(financial_loan[issue_date]),max(financial_loan[issue_date]))`

Month Name

Month Name = `FORMAT('Date Table'[Date], "mmmm")`

Month Name = `FORMAT('Date Table'[Date], "mmm")`

Month Number

Month Number = `MONTH('Date Table'[Date])`

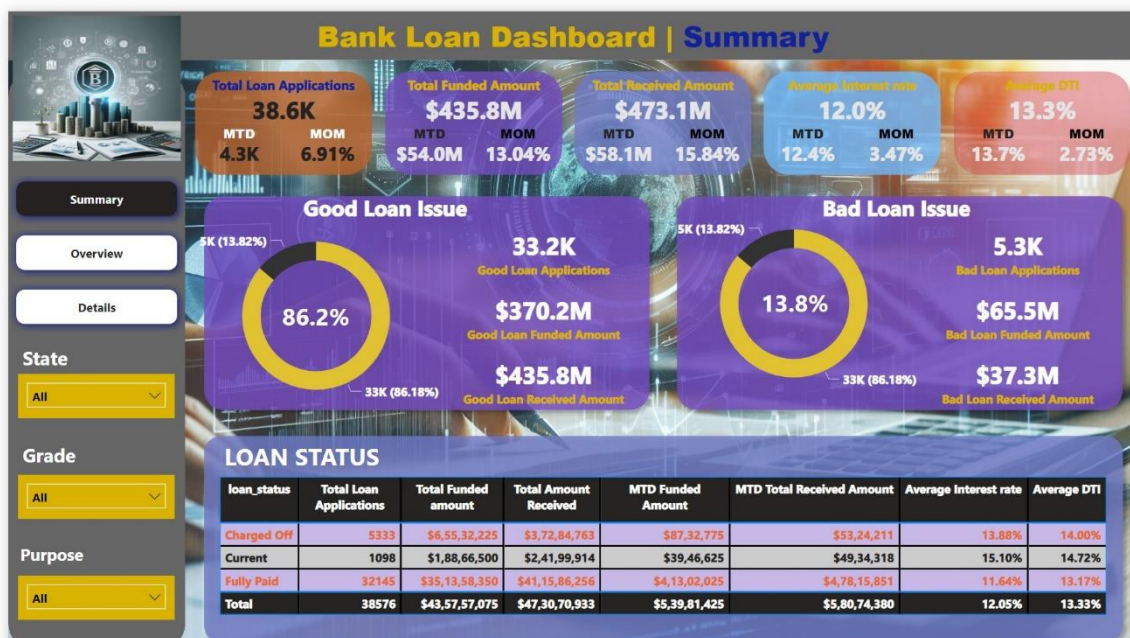
2. Financial Loan Data table

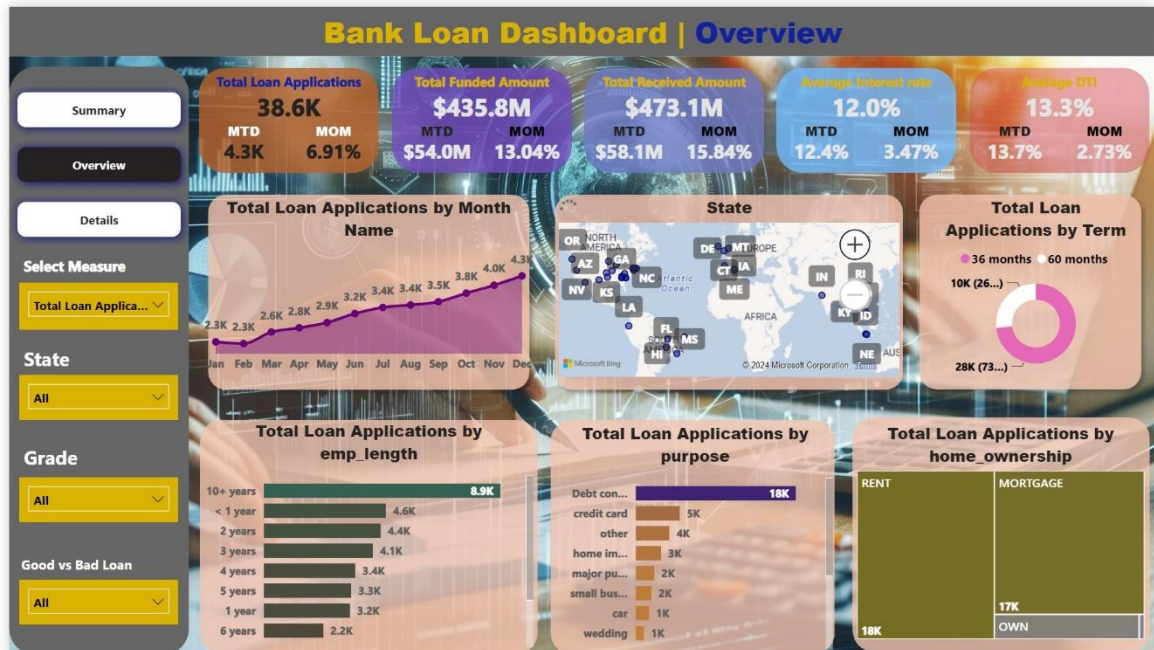
1. Total Loan Applications = `COUNT(financial_loan[id])`
2. MTD Loan Applications = `CALCULATE(TOTALMTD([Total Loan Applications], 'Date Table'[Date]))`
3. PMTD Loan Applications = `CALCULATE([Total Loan Applications], DATESMTD(DATEADD('Date Table'[Date], -1, MONTH)))`
4. MOM Loan Applications = `([MTD Loan Applications] - [PMTD Loan Applications]) / [PMTD Loan Applications]`
5. Total Funded amount = `SUM(financial_loan[loan_amount])`
6. MTD Funded Amount = `CALCULATE(TOTALMTD([Total Funded amount], 'Date Table'[Date]))`
7. PMTD Total Funded Amount = `CALCULATE([Total Funded amount], DATESMTD(DATEADD('Date Table'[Date], -1, MONTH)))`
8. MOM Total Funded amount = `([MTD Funded Amount] - [PMTD Total Funded Amount]) / [PMTD Total Funded Amount]`
9. Total Amount Received = `SUM(financial_loan[total_payment])`
10. MTD Total Received Amount = `CALCULATE(TOTALMTD([Total Amount Received], 'Date Table'[Date]))`
11. PMTD Total Received Amount = `CALCULATE([MTD Total Received Amount], DATESMTD(DATEADD('Date Table'[Date], -1, MONTH)))`
12. MOM Total Received amount = `([MTD Total Received Amount] - [PMTD Total Received Amount]) / [PMTD Total Received Amount]`
13. Average Interest rate = `AVERAGE(financial_loan[int_rate])`
14. MTD average Interest rate = `CALCULATE(TOTALMTD([Average Interest rate], 'Date Table'[Date]))`
15. PMTD Average Interest Rate = `CALCULATE([Average Interest rate], DATESMTD(DATEADD('Date Table'[Date], -1, MONTH)))`
16. MOM Average Interest rate = `([MTD average Interest rate] - [PMTD Average Interest Rate]) / [PMTD Average Interest Rate]`
17. Average DTI = `AVERAGE(financial_loan[dti])`
18. MTD average DTI = `CALCULATE(TOTALMTD([Average DTI], 'Date Table'[Date]))`

19. PMTD Average DTI = $\text{CALCULATE}([\text{Average DTI}], \text{DATESMTD}(\text{DATEADD}('Date Table'[Date], -1, \text{MONTH})))$
20. MOM Average DTI = $([\text{MTD average DTI}] - [\text{PMTD Average DTI}]) / [\text{PMTD Average DTI}]$
21. Good Loan % = $(\text{CALCULATE}([\text{Total Loan Applications}], \text{financial_loan}[\text{Good Vs Bad Loan}] = "Good Loan")) / [\text{Total Loan Applications}]$
22. Good Loan Applications = $\text{CALCULATE}([\text{Total Loan Applications}], \text{financial_loan}[\text{Good Vs Bad Loan}] = "Good Loan")$
23. Good Loan Funded Amount = $\text{CALCULATE}([\text{Total Funded amount}], \text{financial_loan}[\text{Good Vs Bad Loan}] = "Good Loan")$
24. Good Loan Received Amount = $\text{CALCULATE}([\text{Total Amount Received}], \text{financial_loan}[\text{Good Vs Bad Loan}] = "Good Loan")$
25. Bad Loan % = $(\text{CALCULATE}([\text{Total Loan Applications}], \text{financial_loan}[\text{Good Vs Bad Loan}] = "Bad Loan")) / [\text{Total Loan Applications}]$
26. Bad Loan Applications = $\text{CALCULATE}([\text{Total Loan Applications}], \text{financial_loan}[\text{Good Vs Bad Loan}] = "Bad Loan")$
27. Bad Loan Funded Amount = $\text{CALCULATE}([\text{Total Funded amount}], \text{financial_loan}[\text{Good Vs Bad Loan}] = "Bad Loan")$
28. Bad Loan Received Amount = $\text{CALCULATE}([\text{Total Amount Received}], \text{financial_loan}[\text{Good Vs Bad Loan}] = "Bad Loan")$

8.Data Visualization

- After Cleaning And Processing The Data According To The Requirements of Business Stakeholders, Prepare Dashboards' For A Bank To Gain Insights And Improve Decision-Making





Bank Loan Dashboard | Details

Summary

Overview

Details

Select Measure

Total Loan Applica...

State

All

Grade

All

Good vs Bad Loan

All

Total Loan Applications

38.6K

MTD 4.3K MOM 6.91%

Total Funded Amount

\$435.8M

MTD \$54.0M MOM 13.04%

Total Received Amount

\$473.1M

MTD \$58.1M MOM 15.84%

Average Interest rate

12.0%

MTD 12.4% MOM 3.47%

Average DTI

13.3%

MTD 13.7% MOM 2.73%

id	purpose	home_ownership	grade	sub_grade	issue_date	Total Funded amount	Sum of int_rate	Sum of installment	Total Amount Received
989285	Debt consolidation	RENT	G	G1	11 October 2021	\$35,000	0.23	981.45	\$58,564
812976	Debt consolidation	MORTGAGE	G	G2	11 August 2021	\$35,000	0.22	976.24	\$58,480
972576	credit card	MORTGAGE	F	F5	11 October 2021	\$35,000	0.22	973.64	\$57,835
874599	Debt consolidation	MORTGAGE	G	G3	11 September 2021	\$35,000	0.23	983.66	\$56,849
768930	small business	MORTGAGE	F	F3	11 June 2021	\$35,000	0.21	946.68	\$56,663
674448	Debt consolidation	MORTGAGE	G	G2	11 February 2021	\$35,000	0.20	936.66	\$56,199
914211	Debt consolidation	MORTGAGE	F	F1	11 October 2021	\$35,000	0.21	944.71	\$55,907
772157	small business	RENT	G	G1	11 June 2021	\$35,000	0.22	968.86	\$55,769
1057770	Debt consolidation	MORTGAGE	F	F5	11 December 2021	\$35,000	0.20	933.14	\$55,139
833224	Debt consolidation	MORTGAGE	F	F2	11 August 2021	\$35,000	0.21	939.41	\$55,106
698163	home improvement	MORTGAGE	G	G2	11 March 2021	\$35,000	0.20	936.66	\$54,774
762870	Debt consolidation	OWN	E	E4	11 May 2021	\$35,000	0.19	913.52	\$54,746
768153	home improvement	MORTGAGE	F	F2	11 June 2021	\$35,000	0.21	939.41	\$54,715
Total						\$43,57,075	4,647.96	1,26,09,065.75	\$47,30,70,933

Conclusion:

Loan Applications Overview:

- Total Loan Applications: 38.6K.
- MTD Total Loan Applications: 4.3k.
- MOM Increase: Approximately 6.91%.

Funding Trends:

- **Total Funded Amount** MTD: **\$435.8M**.
- **MOM Increase**: Approximately **13.04%**.
- **Total Received Amount** MTD: **\$473.1M**.
- **MOM Increase**: Approximately **15.84%**.

Loan Issue Rates:

- **Good Loan Issue Rate**: **86.2%** (corresponding to **\$370.2M** funded).
- **Bad Loan Issue Rate**: **13.8%** (corresponding to **\$65.5M** funded).

Loan Status Metrics:

Charged Off Loans:

- Total Applications: Not specified
- Total Funded Amount: \$56.22M
- MTD Funded: \$77.26M
- MTD Total Received Amount: \$24.11M

Fully Paid Loans:

- Total Applications: Not specified
- Total Funded Amount: \$70.93M
- MTD Funded: \$81.25M
- MTD Total Received Amount: \$74.0M

Recommendations:

- Investigate reasons behind the **bad loan issue rate** to improve loan quality.
- Monitor **MTD Funded** and **MTD Total Received Amount** for recent trends.
- Consider analysing **average interest rate** and **average DTI** for deeper insights.