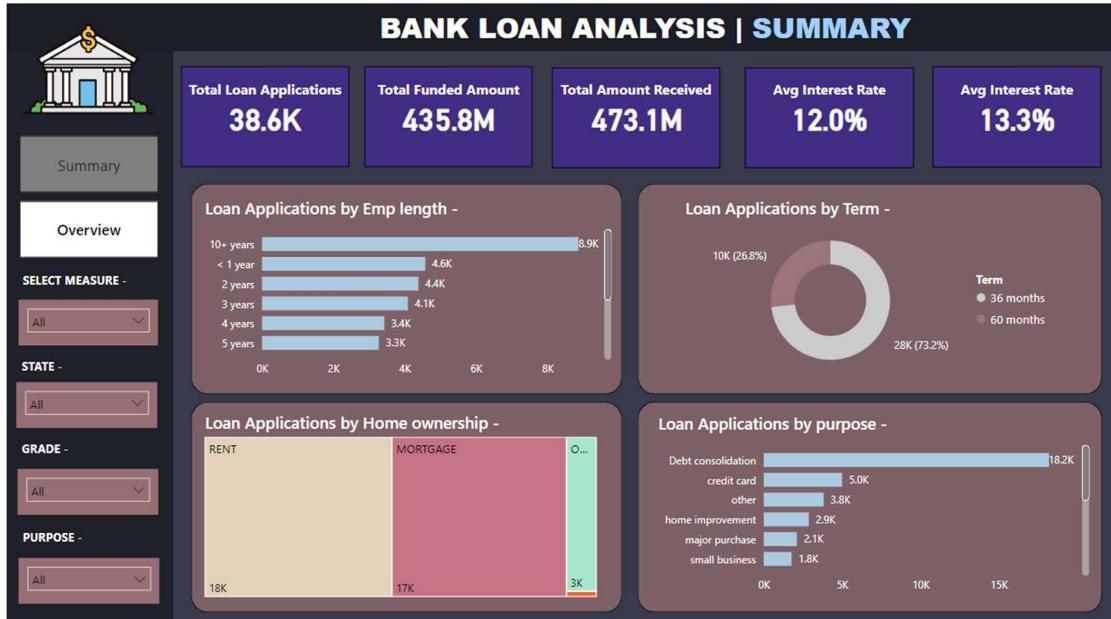
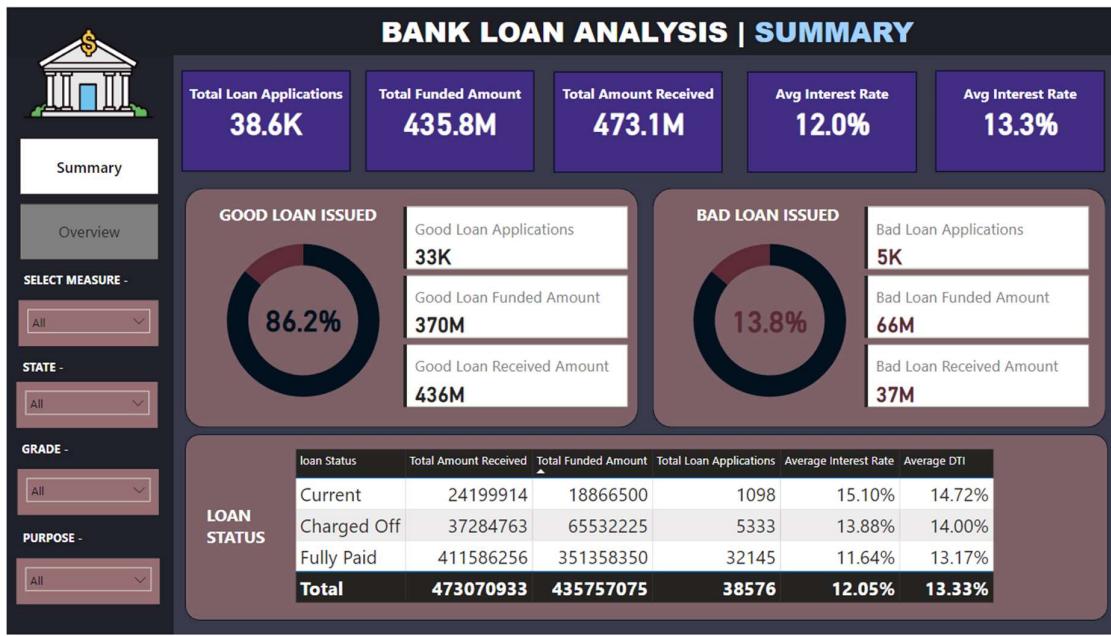


BANK LOAN ANALYSIS POWER BI DASHBOARD –

This project involves the analysis of bank loan data using SQL queries and Power BI to provide a comprehensive overview of key loan metrics. It includes tracking total loan applications, funded amounts, payments received, and average interest rates. Month-to-date (MTD) and previous month-to-date (PMTD) comparisons are used to monitor performance trends over time. The analysis also breaks down loans by debt-to-income (DTI) ratio, loan status (good vs. bad loans), and regional distribution by state.

Additionally, loan data is categorized based on loan term, employment length, loan purpose, and home ownership status, with the option to further classify by loan grade and state. By visualizing this data in Power BI, the project provides actionable insights into loan performance, helping stakeholders make informed decisions and assess risk effectively.



BANK LOAN ANALYSIS SQL QUERIES -

DASHBOARD 1 (SUMMARY) -

TOTAL LOAN APPLICATIONS -

```
Select COUNT(id) AS Total_Loan_Applications FROM bank_loan_db.bank_loan_data;
```

	Total_Loan_Applications
▶	38576

MTD LOAN APPLICATIONS -

```
Select COUNT(id) AS MTD_Loan_Applications FROM bank_loan_db.bank_loan_data
```

```
WHERE MONTH(issue_date)= 12 AND YEAR(issue_date)= 2021
```

	MTD_Loan_Applications
▶	4314

PMTD LOAN APPLICATIONS – (For month to month Track = (MTD-PMTD/PMTD))

```
Select COUNT(id) AS PMTD_Loan_Applications FROM bank_loan_db.bank_loan_data
```

```
WHERE MONTH(issue_date)= 11 AND YEAR(issue_date)= 2021
```

	PMTD_Loan_Applications
▶	4035

TOTAL FUNDED AMOUNT -

```
Select SUM(loan_amount) AS Total_Funded_Amount FROM bank_loan_db.bank_loan_data
```

	Total_Funded_Amount
▶	435757075

TOTAL FUNDED AMOUNT (in Dec) -

```
Select SUM(loan_amount) AS MTD_Total_Funded_Amount FROM bank_loan_db.bank_loan_data
```

```
WHERE MONTH(issue_date)= 12 AND YEAR(issue_date)= 2021
```

	MTD_Total_Funded_Amount
▶	53981425

TOTAL FUNDED AMOUNT (in Nov) -

```
Select SUM(loan_amount) AS PMTD_Total_Funded_Amount FROM bank_loan_db.bank_loan_data
```

```
WHERE MONTH(issue_date)= 11 AND YEAR(issue_date)= 2021
```

	PMTD_Total_Funded_Amount
▶	47754825

TOTAL AMOUNT RECEIVED -

Select SUM(total_payment) AS Total_Amount_received FROM bank_loan_db.bank_loan_data;

	Total_Amount_received
▶	473070933

TOTAL AMOUNT RECEIVED (in Dec) -

Select SUM(total_payment) AS MTD_Total_Amount_received FROM bank_loan_db.bank_loan_data
WHERE MONTH(issue_date)= 12 AND YEAR(issue_date)= 2021

	MTD_Total_Amount_received
▶	58074380

TOTAL AMOUNT RECEIVED (in Nov) -

Select SUM(total_payment) AS PMTD_Total_Amount_received FROM
bank_loan_db.bank_loan_data

WHERE MONTH(issue_date)= 11 AND YEAR(issue_date)= 2021

	PMTD_Total_Amount_received
▶	50132030

AVERAGE INT RATE -

Select AVG(int_rate) * 100 AS Avg_Interest_Rate FROM bank_loan_db.bank_loan_data

ROUNDING AVERAGE INT RATE -

Select ROUND(AVG(int_rate),4) * 100 AS Avg_Interest_Rate FROM bank_loan_db.bank_loan_data

	Avg_Interest_Rate
▶	12.04999999999999

AVERAGE INT RATE (in Dec) -

Select ROUND(AVG(int_rate),4) * 100 AS MTD_Avg_Interest_Rate FROM
bank_loan_db.bank_loan_data

WHERE MONTH(issue_date)= 12 AND YEAR(issue_date)= 2021

	MTD_Avg_Interest_Rate
▶	12.36

AVERAGE INT RATE (in Nov) -

Select ROUND(AVG(int_rate),4) * 100 AS PMTD_Avg_Interest_Rate FROM
bank_loan_db.bank_loan_data

WHERE MONTH(issue_date)= 11 AND YEAR(issue_date)= 2021

PMTD_Avg_Interest_Rate
► 11.940000000000001

ROUNDING AVERAGE DTI -

Select ROUND(AVG(dt),4) * 100 AS Avg_DTI FROM bank_loan_db.bank_loan_data

Avg_DTI
► 13.33

AVERAGE DTI (in Dec) -

Select ROUND(AVG(dt),4) * 100 AS MTD_Avg_DTI FROM bank_loan_db.bank_loan_data

WHERE MONTH(issue_date)= 12 AND YEAR(issue_date)= 2021

MTD_Avg_DTI
► 13.66999999999998

AVERAGE DTI (in Nov) -

Select ROUND(AVG(dt),4) * 100 AS PMTD_Avg_DTI FROM bank_loan_db.bank_loan_data

WHERE MONTH(issue_date)= 11 AND YEAR(issue_date)= 2021

PMTD_Avg_DTI
► 13.3

GOOD LOAN PERCENTAGE (Fully Paid, Loan status) –

SELECT (COUNT(CASE WHEN loan_status = "Fully Paid" OR loan_status = "Current" THEN id END)*100)/COUNT(id) AS Good_Loan_percentage From bank_loan_db.bank_loan_data;

Good_Loan_percentage
► 86.1753

GOOD LOAN APPLICATIONS –

SELECT (COUNT(CASE WHEN loan_status = "Fully Paid" OR loan_status = "Current" THEN id END)) AS Good_Loan_Applications FROM bank_loan_db.bank_loan_data;

OR

SELECT COUNT(id) AS Good_Loan_Applications FROM bank_loan_db.bank_loan_data WHERE loan_status = "Fully Paid" OR loan_status = "Current"

OR

SELECT COUNT(id) AS Good_Loan_Applications FROM bank_loan_db.bank_loan_data WHERE loan_status IN ('Fully Paid', 'Current')

Good_Loan_Applications
► 33243

GOOD LOAN FUNDED AMOUNT –

```
SELECT SUM(loan_amount) AS Good_Loan_Funded_Amount FROM bank_loan_db.bank_loan_data  
WHERE loan_status = "Fully Paid" OR loan_status ="Current"
```

	Good_Loan_Funded_Amount
▶	370224850

GOOD LOAN RECEIVED AMOUNT –

```
SELECT SUM(total_payment) AS Good_Loan_Received_Amount FROM  
bank_loan_db.bank_loan_data WHERE loan_status = "Fully Paid" OR loan_status ="Current"
```

	Good_Loan_Received_Amount
▶	435786170

BAD LOAN PERCENTAGE (Charged Off) –

```
SELECT (COUNT(CASE WHEN loan_status = "Charged Off" THEN id END)*100)/COUNT(id) AS  
Bad_Loan_percentage From bank_loan_db.bank_loan_data;
```

	Bad_Loan_percentage
▶	13.8247

BAD LOAN APPLICATIONS –

```
SELECT (COUNT(CASE WHEN loan_status ="Charged Off" THEN id END)) AS Bad_Loan_Applications  
FROM bank_loan_db.bank_loan_data;
```

OR

```
SELECT COUNT(id) AS Bad_Loan_Applications FROM bank_loan_db.bank_loan_data WHERE  
loan_status = "Charged Off"
```

	Bad_Loan_Applications
▶	5333

BAD LOAN FUNDED AMOUNT –

```
SELECT SUM(loan_amount) AS Bad_Loan_Funded_Amount FROM bank_loan_db.bank_loan_data  
WHERE loan_status = "Charged Off"
```

	Bad_Loan_Funded_Amount
▶	6553225

BAD LOAN RECEIVED AMOUNT –

```
SELECT SUM(total_payment) AS Bad_Loan_Received_Amount FROM bank_loan_db.bank_loan_data  
WHERE loan_status = "Charged Off"
```

	Bad_Loan_Received_Amount
▶	37284763

LOAN STATUS –

SELECT

```
    loan_status,  
    COUNT(id) AS Total_Loan_applications,  
    SUM(total_payment) AS Total_Amount_Received,  
    SUM(loan_amount) AS Total_Funded_Amount,  
    AVG(int_rate * 100) AS Interest_Rate,  
    AVG(dti * 100) AS DTI
```

FROM

bank_loan_db.bank_loan_data

GROUP BY

loan_status

	loan_status	Total_Loan_applications	Total_Amount_Received	Total_Funded_Amount	Interest_Rate	DTI
▶	Charged Off	5333	37284763	65532225	13.878574910931917	14.004732795799695
	Fully Paid	32145	411586256	351358350	11.641070773058658	13.167350754394164
	Current	1098	24199914	18866500	15.0993260473588	14.724344262295068

MTD LOAN STATUS –

SELECT

```
    loan_status,  
    SUM(total_payment) AS MTD_Total_Amount_Received,  
    SUM(loan_amount) AS MTD_Total_Funded_Amount
```

FROM

bank_loan_db.bank_loan_data

WHERE

MONTH(issue_date) = 12

GROUP BY

loan_status

	loan_status	MTD_Total_Amount_Received	MTD_Total_Funded_Amount
▶	Fully Paid	47815851	41302025
	Charged Off	5324211	8732775
	Current	4934318	3946625

DASHBOARD 2 (OVERVIEW) –

MONTH TRENDS BY ISSUE DATE -

SELECT

```
    MONTHNAME(issue_date) AS Month_Name,  
    COUNT(id) AS Total_Loan_Applications,  
    SUM(loan_amount) AS Total_Funded_Amount,  
    SUM(total_payment) AS Total_Received_Amount
```

FROM

```
    bank_loan_db.bank_loan_data
```

GROUP BY

```
    MONTHNAME(issue_date)
```

ORDER BY

```
    MONTHNAME(issue_date)
```

OR (TO GET MONTH WISE)

SELECT

```
    MONTH(issue_date) AS Month_Number,  
    MONTHNAME(issue_date) AS Month_Name,  
    COUNT(id) AS Total_Loan_Applications,  
    SUM(loan_amount) AS Total_Funded_Amount,  
    SUM(total_payment) AS Total_Received_Amount
```

FROM

```
    bank_loan_db.bank_loan_data
```

GROUP BY

```
    MONTH(issue_date), MONTHNAME(issue_date)
```

ORDER BY

```
    MONTH(issue_date)
```

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

REGIONAL ANALYSIS BY STATE –

SELECT

```
address_state,
COUNT(id) AS Total_Loan_Applications,
SUM(loan_amount) AS Total_Funded_Amount,
SUM(total_payment) AS Total_Received_Amount
```

FROM

```
bank_loan_db.bank_loan_data
```

GROUP BY

```
address_state
```

ORDER BY

```
SUM(loan_amount) DESC
```

	address_state	Total_Loan_Applications	Total_Funded_Amount	Total_Received_Amount
▶	CA	6894	78484125	83901234
	NY	3701	42077050	46108181
	TX	2664	31236650	34392715
	FL	2773	30046125	31601905
	NJ	1822	21657475	23425159
	IL	1486	17124225	18875941
	VA	1375	15982650	17711443
	PA	1482	15826525	17462908
	GA	1355	15480325	16728040
	MA	1310	15051000	16676279
	OH	1188	12991375	14330148
	MD	1027	11911400	12985170
	AZ	833	9206000	10041986
	CO	770	8976000	9845810

LOAN TERM ANALYSIS –

SELECT

```
    term,  
    COUNT(id) AS Total_Loan_Applications,  
    SUM(loan_amount) AS Total_Funded_Amount,  
    SUM(total_payment) AS Total_Received_Amount
```

FROM

```
    bank_loan_db.bank_loan_data
```

GROUP BY

```
    Term
```

	term	Total_Loan_Applications	Total_Funded_Amount	Total_Received_Amount
▶	60 months	10339	162715850	178361475
	36 months	28237	273041225	294709458

EMPLOYEE LENGTH ANALYSIS –

SELECT

```
    emp_length,  
    COUNT(id) AS Total_Loan_Applications,  
    SUM(loan_amount) AS Total_Funded_Amount,  
    SUM(total_payment) AS Total_Received_Amount
```

FROM

```
    bank_loan_db.bank_loan_data
```

GROUP BY

```
    emp_length
```

ORDER BY

```
    COUNT(id) DESC
```

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

LOAN PURPOSE BREAKDOWN –

SELECT

```
    purpose,  
    COUNT(id) AS Total_Loan_Applications,  
    SUM(loan_amount) AS Total_Funded_Amount,  
    SUM(total_payment) AS Total_Received_Amount
```

FROM

```
    bank_loan_db.bank_loan_data
```

GROUP BY

```
    purpose
```

ORDER BY

```
    COUNT(id) DESC
```

	purpose	Total_Loan_Applications	Total_Funded_Amount	Total_Received_Amount
▶	Debt consolidation	18214	232459675	253801871
	credit card	4998	58885175	65214084
	other	3824	31155750	33289676
	home improvement	2876	33350775	36380930
	major purchase	2110	17251600	18676927
	small business	1776	24123100	23814817
	car	1497	10223575	11324914
	wedding	928	9225800	10266856
	medical	667	5533225	5851372
	moving	559	3748125	3999899
	house	366	4824925	5185538
	vacation	352	1967950	2116738
	educational	315	2161650	2248380
	renewable_energy	94	845750	898931

HOME OWNERSHIP ANALYSIS –

SELECT

```
    home_ownership,  
    COUNT(id) AS Total_Loan_Applications,  
    SUM(loan_amount) AS Total_Funded_Amount,  
    SUM(total_payment) AS Total_Received_Amount
```

FROM

```
    bank_loan_db.bank_loan_data
```

GROUP BY

```
    home_ownership
```

	home_ownership	Total_Loan_Applications	Total_Funded_Amount	Total_Received_Amount
▶	RENT	18439	185768475	201823056
	MORTGAGE	17198	219329150	238474438
	OWN	2838	29597675	31729129
	OTHER	98	1044975	1025257
	NONE	3	16800	19053

OR (To Classify by Grade)

SELECT

```
    home_ownership,
    COUNT(id) AS Total_Loan_Applications,
    SUM(loan_amount) AS Total_Funded_Amount,
    SUM(total_payment) AS Total_Received_Amount
```

FROM

 bank_loan_db.bank_loan_data

WHERE

 grade = 'A'

GROUP BY

 home_ownership

ORDER BY

 COUNT(id) DESC

	home_ownership	Total_Loan_Applications	Total_Funded_Amount	Total_Received_Amount
▶	MORTGAGE	4973	45908575	47963188
	RENT	3918	31825075	33290992
	OWN	773	6340100	6618219
	OTHER	24	168475	167924
	NONE	1	10000	11240

OR (To Classify by Grade and Address State)

SELECT

```
    home_ownership,
    COUNT(id) AS Total_Loan_Applications,
    SUM(loan_amount) AS Total_Funded_Amount,
```

```
SUM(total_payment) AS Total_Received_Amount  
FROM  
    bank_loan_db.bank_loan_data  
WHERE  
    grade = 'A' AND address_state = 'CA'  
GROUP BY  
    home_ownership  
ORDER BY  
    COUNT(id) DESC
```

	home_ownership	Total_Loan_Applications	Total_Funded_Amount	Total_Received_Amount
▶	RENT	894	7359175	7680797
	MORTGAGE	612	6276375	6490097
	OWN	93	802100	844556
	OTHER	2	14000	15340