BANK LOAN REPORT QUERY DOCUMENT

A. BANK LOAN REPORT | SUMMARY | DASHBOARD-1

Key Performance Indicators (KPI's) :

1. **Total Loan Applications:** We 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).**

Query:

Total Loan Applications

```
SELECT COUNT(loan_id) AS Total_Loan_Applications FROM financial_loan;
```

Total_Loan_Applications
38576

MTD Loan Applications

```
SELECT COUNT(loan_id) AS MTD_Total_Applications FROM financial_loan
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021;
```

MTD_Total_Applications
4314

PMTD Loan Applications

```
SELECT COUNT(loan_id) AS PMTD_Total_Applications FROM financial_loan
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021;
```

PMTD_Total_Applications
4035

2. **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.

Query:

Total Funded Amount

```
SELECT SUM(loan_amount) AS Total_Funded_Amount FROM financial_loan;
```

Total_Funded_Amount
435757075

MTD Total Funded Amount

```
SELECT SUM(loan_amount) AS MTD_Total_Funded_Amount FROM financial_loan
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021;
```

MTD_Total_Funded_Amount
53981425

PMTD Total Funded Amount

```
SELECT SUM(loan_amount) AS PMTD_Total_Funded_Amount FROM financial_loan
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021;
```

PMTD_Total_Funded_Amount
47754825

3. **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.

Query:

Total Amount Received

```
SELECT SUM(total_payment) AS Total_Funded_Amount FROM financial_loan;
```

Total_Funded_Amount
473070933

MTD Total Funded Amount

```
SELECT SUM(total_payment) AS MTD_Total_Funded_Amount FROM financial_loan
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021;
```

MTD_Total_Funded_Amount
58074380

PMTD Total Funded Amount

```
SELECT SUM(total_payment) AS PMTD_Total_Funded_Amount FROM financial_loan
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021;
```

PMTD_Total_Funded_Amount
50132030

4. **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.

Query:

Average Interest Rate

```
SELECT AVG(int_rate)*100 AS Avg_Int_Rate FROM financial_loan;
```

Avg_Int_Rate
12.048831417204827

MTD Average Interest

```
SELECT AVG(int_rate)*100 AS MTD_Avg_Int_Rate FROM financial_loan
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021;
```

MTD_Avg_Int_Rate
12.356040867604229

PMTD Average Interest

```
SELECT AVG(int_rate)*100 AS PMTD_Avg_Int_Rate FROM financial_loan
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021;
```

PMTD_Avg_Int_Rate
11.941717549826132

5. **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.

Query:

Average DTI

```
SELECT ROUND(AVG(dti),4)*100 AS Avg_dti FROM financial_loan;
```

Avg_dti
13.33

MTD Average DTI

```
SELECT ROUND(AVG(dti),4)*100 AS Avg_dti FROM financial_loan
WHERE MONTH(issue_date) = 12;
```

Avg_dti
13.669999999999998

PMTD Average DTI

```
SELECT ROUND(AVG(dti),4)*100 AS Avg_dti FROM financial_loan
WHERE MONTH(issue_date) = 11;
```

Avg_dti
13.3

Good Loan vs Bad Loan KPI's :

A. Good Loan

i. Good Loan Application Percentage

```
SELECT
  (COUNT(CASE WHEN loan_status = 'Fully Paid' OR loan_status = 'Current' THEN id END) * 100.0) / COUNT(id)
AS Good_loan_percentage
FROM financial_loan;
```

Good_loan_percentage
86.1753

ii. Good Loan Applications

```
SELECT COUNT(id) AS Good_Loan_Applications FROM financial_loan
WHERE loan_status = 'Fully Paid' OR loan_status = 'Current';
```

Good_Loan_Application
33243

iii. Good Loan Funded Amount

```
SELECT SUM(loan_amount) AS Good_Loan_Funded_Amount FROM financial_loan
WHERE loan_status = 'Fully Paid' OR loan_status = 'Current';
```

Good_Loan_Funded_Amount
370224850

iv. Good Loan Total Received Amount

```
SELECT SUM(total_payment) AS Good_Loan_Amount_Received FROM financial_loan
WHERE loan_status = 'Fully Paid' OR loan_status = 'Current';
```

Good_Loan_Amount_Received
435786170

B. Bad Loan

i. Bad Loan Application Percentage

```
SELECT (SELECT COUNT(loan_id) FROM financial_loan WHERE loan_status = 'Charged off')*100/
COUNT(loan_id) AS Bad_loan_percentage FROM financial_loan;
```

Bad_loan_percentage
13.8247

ii. Bad Loan Applications

```
SELECT COUNT(loan_id) AS Bad_Loan_Applications FROM financial_loan
WHERE loan_status = 'Charged off';
```

Bad_Loan_Applications
5333

iii. Bad Loan Funded Amount

```
SELECT SUM(loan_amount) AS Bad_Loan_Funded_Amount FROM financial_loan
WHERE loan_ status = 'Charged off';
```

Bad_Loan_Funded_Amount
65532225

iv. Bad Loan Total Received Amount

```
SELECT SUM(total_payment) AS Bad_Loan_Amount_Received FROM financial_loan
WHERE loan_status = 'Charged off';
```

Bad_Loan_Amount_Received
37284763

C. **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.

```
SELECT
        loan_status,
        COUNT(loan_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 financial_loan
GROUP BY loan_status
ORDER BY loan_status;
```

loan_status	Total_loan_applications	Total_amount_received	Total_funded_amount	interest_rate	DTI
Charged Off	5333	37284763	65532225	13.878574931828878	14.004732800551693
Current	1098	24199914	18866500	15.099326080094704	14.724344273684343
Fully Paid	32145	411586256	351358350	11.64107079180918	13.16735075574341

```
SELECT
    loan_status,
    SUM(total_payment) AS MTD_Total_Amount_Received,
    SUM(loan_amount) AS PMTD_Total_Funded_Amount
FROM financial_loan
WHERE MONTH(issue_date) = 12
GROUP BY loan_status
ORDER BY loan_status;
```

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

B. BANK LOAN REPORT | SUMMARY | DASHBOARD-2

MONTHLY:

```
SELECT
    MONTH(issue_date)  AS Month_Number,
    MONTHNAME(Issue_date)  AS Month_Name,
    COUNT(loan_id) AS Total_loan_applications,
    SUM(total_payment) AS Total_Amount_Received,
    SUM(loan_amount) AS Total_Funded_Amount
FROM financial_loan
GROUP BY MONTH(issue_date), MONTHNAME(Issue_date)
ORDER BY MONTH(issue_date);
```

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

STATE:

```
SELECT
    Address_state AS State,
    COUNT(loan_id) AS Total_loan_applications,
    SUM(loan_amount) AS Total_Funded_Amount,
    SUM(total_payment) AS Total_Amount_Received
FROM financial_loan
GROUP BY Address_state
ORDER BY Address_state;
```

	State	Total_Loan_Applications	Total_Funded_Amount	Total_Amount_Received
1	AK	78	1031800	1108570
2	AL	432	4949225	5492272
3	AR	236	2529700	2777875
4	AZ	833	9206000	10041986
5	CA	6894	78484125	83901234
6	CO	770	8976000	9845810
7	CT	730	8435575	9357612
8	DC	214	2652350	2921854
9	DE	110	1138100	1269136
10	FL	2773	30046125	31601905
11	GA	1355	15480325	16728040
12	HI	170	1850525	2080184
13	IA	5	56450	64482
14	ID	6	59750	65329
15	IL	1486	17124225	18875941
16	IN	9	86225	85521
17	KS	260	2872325	3247394
18	KY	320	3504100	3792530
19	LA	426	4498900	5001160
20	MA	1310	15051000	16676279
21	MD	1027	11911400	12985170
22	ME	3	9200	10808
23	MI	685	7829900	8543660
24	MN	592	6302600	6750746
25	MO	660	7151175	7692732
26	MS	19	139125	149342
27	MT	79	829525	892047
28	NC	759	8787575	9534813
29	NE	5	31700	24542
30	NH	161	1917900	2101386
31	NJ	1822	21657475	23425159
32	NM	183	1916775	2084485
33	NV	482	5307375	5451443
34	NY	3701	42077050	46108181
35	OH	1188	12991375	14330148
36	OK	293	3365725	3712649
37	OR	436	4720150	4966903
38	PA	1482	15826525	17462908
39	RI	196	1883025	2001774

TERM:

```
SELECT
        term AS Term,
        COUNT(loan_id) AS Total_Loan_Applications,
        SUM(loan_amount) AS Total_Funded_Amount,
        SUM(total_payment) AS Total_Amount_Received
FROM financial_loan
GROUP BY term
ORDER BY SUM(loan_amount);
```

	term	Total_loan_applications	Total_Funded_Amount	Total_Amount_Received
▶	60 months	10339	162715850	178361475
	36 months	28237	273041225	294709458

EMPLOYEE LENGTH:

```
SELECT
        emp_length AS Employee_Length,
        COUNT(loan_id) AS Total_Loan_Applications,
        SUM(loan_amount) AS Total_Funded_Amount,
        SUM(total_payment) AS Total_Amount_Received
FROM financial_loan
GROUP BY emp_length
ORDER BY COUNT(loan_id) DESC;
```

Employee_Length	Total_loan_applications	Total_Funded_Amount	Total_Amount_Received
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

Note: We have applied multiple Filters on all the dashboards. You can check the results for the filters as well by modifying the query and comparing the results.

For e.g

See the results when we hit the Grade A in the filters for dashboards.

```
SELECT
        purpose AS purpose,
        COUNT(loan_id) AS Total_Loan_Applications,
        SUM(loan_amount) AS Total_Funded_Amount,
        SUM(total_payment) AS Total_Amount_Received
FROM financial_loan
WHERE  Grade = 'A'
GROUP BY purpose
ORDER BY COUNT(loan_id) DESC;
```

purpose	Total_Loan_Applications	Total_Funded_Amount	Total_Amount_Received
Debt consolidation	3753	37216300	38822971
credit card	1353	12636075	13339495
other	1024	7043175	7397982
home improvement	933	8359175	8744006
major purchase	796	5344575	5604259
car	577	3629475	3805538
small business	334	3172075	3190467
wedding	237	2001725	2126202
medical	197	1471850	1526882
moving	164	1069450	1099875
vacation	122	683625	694542
house	91	916575	957878
educational	79	484000	515639
renewable_energy	29	224150	225827