BANK LOAN REPORT QUERY DOCUMENT

DASHBOARD 1: BANK LOAN REPORT - SUMMARY

In order to monitor and assess bank's lending activities and performance, a comprehensive Bank Loan Report has to be created. This report aims to provide insights into key loan-related metrics and their changes over time. The report will help make data-driven decisions, track loan portfolio's health, and identify trends that can inform lending strategies.

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).

```
SELECT COUNT(*) AS Total_Loan_Applications FROM bank_loan_data
```

	Total_Loan_Applications
1	38576

MTD Loan Applications

```
SELECT COUNT(*) AS MTD_Total_Loan_Applications FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date)=2021
```

	MTD_Total_Loan_Applications
1	4314

PMTD Loan Applications

```
SELECT COUNT(*) AS PMTD_Total_Loan_Applications FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date)=2021
```

	PMTD_Total_Loan_Applications
1	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.

```
SELECT SUM(loan_amount) AS Total_Funded_Amount FROM bank_loan_data
```

	Total_Funded_Amount
1	435757075

MTD Total Funded Amount

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

	MTD_Total_Funded_Amount
1	53981425

PMTD Total Funded Amount

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

	PMTD_Total_Funded_Amount
1	47754825

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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.

```
SELECT SUM(total_payment) AS Total_Amount_Received FROM bank_loan_data
```

	Total_Amount_Received
1	473070933

MTD Total Amount Received

```
SELECT SUM(total_payment) AS MTD_Total_Amount_Received FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date)=2021
```

	PMTD_Total_Amount_Received
1	58074380

PMTD Total Amount Received

```
SELECT SUM(total_payment) AS PMTD_Total_Amount_Received FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date)=2021
```

	PMTD_Total_Amount_Received
1	50132030

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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 lending portfolio's overall cost.

```
SELECT ROUND(AVG(int_rate)*100,2) AS Avg_Interest_Rate FROM bank_loan_data
```

	Avg_Interest_Rate
1	12.05

MTD Average Interest

```
SELECT ROUND(AVG(int_rate)*100,2) AS MTD_Avg_Interest_Rate FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date)=2021
```

	MTD_Avg_Interest_Rate
1	12.36

PMTD Average Interest

```
SELECT ROUND(AVG(int_rate)*100,2) AS PMTD_Avg_Interest_Rate FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date)=2021
```

	PMTD_Avg_Interest_Rate
1	11.94

---

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

```
SELECT ROUND(AVG(dti)*100,2) AS Avg_DTI FROM bank_loan_data
```

	Avg_DTI
1	13.33

MTD Avg DTI

```
SELECT ROUND(AVG(dti)*100,2) AS MTD_Avg_DTI FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date)=2021
```

	MTD_Avg_DTI
1	13.67

PMTD Avg DTI

```
SELECT ROUND(AVG(dti)*100,2) AS PMTD_Avg_DTI FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date)=2021
```

	PMTD_Avg_DTI
1	13.3

Good Loan vs Bad Loan KPI's

GOOD LOAN ISSUED:

1. **Good Loan Percentage:** We need to calculate the percentage of loan applications classified as 'Good Loans.' This category includes loans with a loan status of 'Fully Paid' and 'Current.'

```
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_data
```

	Good_loan_percentage
1	86

2. **Good Loan Applications:** Identifying the total number of loan applications falling under the 'Good Loan' category, which consists of loans with a loan status of 'Fully Paid' and 'Current.'

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

	Good_Loan_Applications
1	33243

3. **Good Loan Funded Amount:** Determining the total amount of funds disbursed as 'Good Loans.' This includes the principal amounts of loans with a loan status of 'Fully Paid' and 'Current.'

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

	Good_Loan_Funded_Amount
1	370224850

4. **Good Loan Amount Received:** Tracking the total amount received from borrowers for 'Good Loans,' which encompasses all payments made on loans with a loan status of 'Fully Paid' and 'Current.'

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

	Good_Loan_Received_Amount
1	435786170

BAD LOAN ISSUED:

1. **Bad Loan Percentage:** Calculating the percentage of loan applications categorized as 'Bad Loans.' This category specifically includes loans with a loan status of 'Charged Off.'

```
SELECT
    (COUNT(CASE WHEN loan_status = 'Charged Off' THEN id END) * 100) /
      COUNT(id) AS Bad_Loan_Percentage
FROM bank_loan_data
```

	Bad_Loan_Percentage
1	13

2. **Bad Loan Applications:** Calculating the percentage of loan applications categorized as 'Bad Loans.' This category specifically includes loans with a loan status of 'Charged Off.'

```
SELECT COUNT(id) AS Bad_Loan_Applications FROM bank_loan_data
WHERE loan_status = 'Charged Off'
```

	Bad_Loan_Applications
1	5333

3. **Bad Loan Funded Amount:** Determining the total amount of funds disbursed as 'Bad Loans.' This comprises the principal amounts of loans with a loan status of 'Charged Off.'

```
SELECT SUM(loan_amount) AS Bad_Loan_Funded_Amount FROM bank_loan_data
WHERE loan_status = 'Charged Off'
```

	Bad_Loan_Funded_Amount
1	65532225

4. **Bad Loan Amount Received:** Tracking the total amount received from borrowers for 'Bad Loans,' which includes all payments made on loans with a loan status of 'Charged Off.'

```
SELECT SUM(total_payment) AS Bad_Loan_ Received_Amount FROM bank_loan_data
WHERE loan_status = 'Charged Off'
```

	Bad_Loan_Received_Amount
1	37284763

LOAN STATUS:

In order to gain a comprehensive overview of lending operations and monitor the performance of loans, we aim to create a grid view report categorized by 'Loan Status.' This report will serve as a valuable tool for analysing and understanding the key indicators associated with different loan statuses. 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(id) AS Loan_Count,
  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_data
GROUP BY
  loan_status
```

	loan_status	Loan_Count	Total_Amount_Received	Total_Funded_Amount	Interest_Rate	DTI
1	Fully Paid	32145	411586256	351358350	11.6410707918092	13.1673507557434
2	Charged Off	5333	37284763	65532225	13.8785749318289	14.0047328005517
3	Current	1098	24199914	18866500	15.0993260800947	14.7243442736843

```
SELECT
       loan_status,
       SUM(total_payment) AS MTD_Total_Amount_Received,
       SUM(loan_amount) AS MTD_Total_Funded_Amount
FROM bank_loan_data
WHERE MONTH(issue_date) = 12
GROUP BY loan_status
```

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

DASHBOARD 2: BANK LOAN REPORT - OVERVIEW

In Bank Loan Report project, aim is to visually represent critical loan-related metrics and trends using a variety of chart types. These charts will provide a clear and insightful view of our lending operations, facilitating data-driven decision-making and enabling us to gain valuable insights into various loan parameters. Below are the specific chart requirements:

1. Monthly Trends by Issue Date (Line Chart):

Chart Type: Line Chart

Metrics: 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received'

X-Axis: Month (based on 'Issue Date')

Y-Axis: Metrics' Values

Objective: This line chart will showcase how 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received' vary over time, allowing us to identify seasonality and long-term trends in lending activities.

```
SELECT
	MONTH(issue_date) AS Month_Number,
	DATENAME(MONTH, 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_data
GROUP BY MONTH(issue_date), DATENAME(MONTH, issue_date)
ORDER BY MONTH(issue_date)
```

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

2. Regional Analysis by State (Filled Map):

Chart Type: Filled Map

Metrics: 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received'

Geographic Regions: States

Objective: This filled map will visually represent lending metrics categorized by state, enabling us to identify regions with significant lending activity and assess regional disparities.

```sql
SELECT
	address_state AS State,
	COUNT(id) AS Total_Loan_Applications,
	SUM(loan_amount) AS Total_Funded_Amount,
	SUM(total_payment) AS Total_Received_Amount
FROM bank_loan_data
GROUP BY address_state
ORDER BY SUM(loan_amount) DESC
```

	State	Total_Loan_Applications	Total_Funded_Amount	Total_Received_Amount
1	CA	6894	78484125	83901234
2	NY	3701	42077050	46108181
3	TX	2664	31236650	34392715
4	FL	2773	30046125	31601905
5	NJ	1822	21657475	23425159
6	IL	1486	17124225	18875941
7	VA	1375	15982650	17711443
8	PA	1482	15826525	17462908
9	GA	1355	15480325	16728040
10	MA	1310	15051000	16676279
11	OH	1188	12991375	14330148
12	MD	1027	11911400	12985170
13	AZ	833	9206000	10041986
14	CO	770	8976000	9845810
15	WA	805	8855525	9531739
16	NC	759	8787575	9534813
17	CT	730	8435575	9357612
18	MI	685	7829900	8543660
19	MO	660	7151175	7692732
20	MN	592	6302600	6750746
21	NV	482	5307375	5451443
22	SC	464	5080475	5462458
23	WI	446	5070450	5485161
24	AL	432	4949225	5492272
25	OR	436	4720150	4966903
26	LA	426	4498900	5001160
27	KY	320	3504100	3792530
28	OK	293	3365725	3712649
29	KS	260	2872325	3247394
30	UT	252	2849225	2952412
31	DC	214	2652350	2921854
32	AR	236	2529700	2777875
33	NH	161	1917900	2101386
34	NM	183	1916775	2084485
35	RI	196	1883025	2001774
36	HI	170	1850525	2080184
37	WV	167	1830525	1991936
38	DE	110	1138100	1269136
39	AK	78	1031800	1108570
40	WY	79	890750	1046050
41	MT	79	829525	892047
42	SD	63	606150	656514
43	VT	54	504100	534973
44	TN	17	162175	141522
45	MS	19	139125	149342
46	IN	9	86225	85521
47	ID	6	59750	65329
48	IA	5	56450	64482
49	NE	5	31700	24542
50	ME	3	9200	10808

3. Loan Term Analysis (Donut Chart):

Chart Type: Donut Chart

Metrics: 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received'

Segments: Loan Terms (e.g., 36 months, 60 months)

Objective: This donut chart will depict loan statistics based on different loan terms, allowing us to understand the distribution of loans across various term lengths.

```
SELECT
	term,
	COUNT(id) AS Total_Loan_Applications,
	SUM(loan_amount) AS Total_Funded_Amount,
	SUM(total_payment) AS Total_Amount_Received
FROM bank_loan_data
GROUP BY term
ORDER BY term
```

	term	Total_Loan_Applications	Total_Funded_Amount	Total_Received_Amount
1	36 months	28237	273041225	294709458
2	60 months	10339	162715850	178361475

4. Employee Length Analysis (Bar Chart):

Chart Type: Bar Chart

Metrics: 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received'

X-Axis: Employee Length Categories (e.g., 1 year, 5 years, 10+ years)

Y-Axis: Metrics' Values

Objective: This bar chart will illustrate how lending metrics are distributed among borrowers with different employment lengths, helping us assess the impact of employment history on loan applications.

```
SELECT
	emp_length AS Employee_Length,
	COUNT(id) AS Total_Loan_Applications,
	SUM(loan_amount) AS Total_Funded_Amount,
	SUM(total_payment) AS Total_Amount_Received
FROM bank_loan_data
GROUP BY emp_length
ORDER BY emp_length
```

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

5. Loan Purpose Breakdown (Bar Chart):

Chart Type: Bar Chart

Metrics: 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received'

X-Axis: Loan Purpose Categories (e.g., debt consolidation, credit card refinancing)

Y-Axis: Metrics' Values

Objective: This 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.

```
SELECT
	purpose,
	COUNT(id) AS Total_Loan_Applications,
	SUM(loan_amount) AS Total_Funded_Amount,
	SUM(total_payment) AS Total_Amount_Received
FROM bank_loan_data
GROUP BY purpose
ORDER BY COUNT(id) DESC
```

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

6. Home Ownership Analysis (Tree Map):

Chart Type: Tree Map

Metrics: 'Total Loan Applications,' 'Total Funded Amount,' and 'Total Amount Received'

Hierarchy: Home Ownership Categories (e.g., own, rent, mortgage)

Objective: This tree map will display loan metrics categorized by different home ownership statuses, allowing for a hierarchical view of how home ownership impacts loan applications and disbursements.

```
SELECT
	home_ownership,
	COUNT(id) AS Total_Loan_Applications,
	SUM(loan_amount) AS Total_Funded_Amount,
	SUM(total_payment) AS Total_Amount_Received
FROM bank_loan_data
GROUP BY home_ownership
ORDER BY COUNT(id) DESC
```

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

DASHBOARD 3: DETAILS

A comprehensive 'Details Dashboard' provides a consolidated view of all the essential information within the 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.

Objective:

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.