BANK LOAN DATABASE ANALYSIS – SQL Queries

```
SELECT * FROM bank_loan_data
```

100 %

Results | Messages

	id	address_state	application_type	emp_length	emp_title	grade	home_ownership	issue_date	last_credit_pull_date	last_payment_date	loan_status	next_pay
1	54734	CA	INDIVIDUAL	< 1 year	NULL	B	RENT	2021-08-09	2021-08-12	2021-10-11	Fully Paid	2021-11-
2	55742	NY	INDIVIDUAL	< 1 year	CNN	B	RENT	2021-05-08	2021-08-12	2021-06-11	Fully Paid	2021-07-
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-
4	57416	CT	INDIVIDUAL	6 years	State Farm Insurance	C	RENT	2021-11-09	2021-05-16	2021-11-12	Fully Paid	2021-12-
5	58915	CA	INDIVIDUAL	3 years	QUalcomm Inc	B	RENT	2021-04-08	2021-03-14	2021-04-11	Fully Paid	2021-05-
6	59006	TX	INDIVIDUAL	3 years	NULL	C	MORTGAGE	2021-09-09	2021-09-12	2021-10-12	Fully Paid	2021-11-
7	61390	TX	INDIVIDUAL	< 1 year	NULL	A	MORTGAGE	2021-02-10	2021-03-12	2021-03-12	Fully Paid	2021-04-
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-
9	62102	MA	INDIVIDUAL	5 years	Rockwell Automation Inc.	B	RENT	2021-04-10	2021-03-13	2021-02-11	Fully Paid	2021-03-
10	65426	MI	INDIVIDUAL	< 1 year	Infotrieve, Inc.	B	MORTGAGE	2021-08-09	2021-05-16	2021-06-11	Charged Off	2021-07-
11	65640	CA	INDIVIDUAL	10+ years	kmex/univision	C	MORTGAGE	2021-05-08	2021-04-15	2021-05-11	Fully Paid	2021-06-
12	66431	KY	INDIVIDUAL	3 years	Video Monitoring Services	B	RENT	2021-02-09	2021-03-12	2021-03-12	Fully Paid	2021-04-
13	66749	MS	INDIVIDUAL	10+ years	crown cork & seal	C	MORTGAGE	2021-12-08	2021-12-11	2021-01-12	Fully Paid	2021-02-
14	66943	CA	INDIVIDUAL	< 1 year	The Coggins Co.	B	RENT	2021-08-10	2021-07-14	2021-10-11	Fully Paid	2021-11-
15	66964	KS	INDIVIDUAL	3 years	Acquity	D	MORTGAGE	2021-06-08	2021-06-11	2021-06-11	Fully Paid	2021-07-
16	67503	MI	INDIVIDUAL	1 year	Genesys PHO	A	MORTGAGE	2021-10-09	2021-02-14	2021-02-12	Fully Paid	2021-03-
17	68163	GA	INDIVIDUAL	9 years	Matrix Resources	A	MORTGAGE	2021-02-10	2021-02-13	2021-02-13	Fully Paid	2021-03-
18	68381	CA	INDIVIDUAL	< 1 year	Albertsons	A	RENT	2021-03-08	2021-03-15	2021-03-11	Fully Paid	2021-04-
19	68817	NC	INDIVIDUAL	10+ years	CAROLINA BROKERAGE CO	C	MORTGAGE	2021-03-08	2021-09-10	2021-09-10	Fully Paid	2021-10-

```
SELECT count(id) AS Total_loan_applications FROM bank_loan_data
```

100 %

Results | Messages

	Total_loan_applications
1	38576

```
SELECT count(id) AS MTD_Total_loan_applications FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021
```

100 %

Results | Messages

	MTD_Total_loan_applications
1	4314

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

100 %

Results | Messages

	MTD_Total_Funded_Amt
1	53981425

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

100 %

Results | Messages

	PMTD_Total_Funded_Amt
1	47754825

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

100 %

Results | Messages

	Total_amt_received
1	473070933

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

100 %

Results | Messages

	Total_amt_received
1	473070933

```
SELECT AVG(int_rate) AS Avg_interest_rate FROM bank_loan_data
```

100 %

Results | Messages

	Avg_interest_rate
1	0.120488314172048

```
SELECT AVG(int_rate) * 100 AS Avg_interest_rate_Percent FROM bank_loan_data
```

100 %

Results | Messages

	Avg_interest_rate_Percent
1	12.0488314172048

```
SELECT ROUND(AVG(int_rate), 4) * 100 AS Avg_interest_rate FROM bank_loan_data
```

.00 %

Results | Messages

	Avg_interest_rate
1	12.05

```
SELECT ROUND(AVG(int_rate), 4) * 100 AS Avg_interest_rate FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021
```

100 %

Results | Messages

	Avg_interest_rate
1	12.36

```
SELECT ROUND(AVG(dti), 4) * 100 AS Avg_DTI FROM bank_loan_data
```

100 %

Results | Messages

	Avg_DTI
1	13.33

```sql
SELECT ROUND(AVG(dti), 4) * 100 AS MTD_Avg_DTI FROM bank_loan_data
WHERE MONTH(issue_date) = 12 AND YEAR(issue_date) = 2021
```

100 %

Results | Messages

	MTD_Avg_DTI
1	13.67

```sql
SELECT ROUND(AVG(dti), 4) * 100 AS PMTD_Avg_DTI FROM bank_loan_data
WHERE MONTH(issue_date) = 11 AND YEAR(issue_date) = 2021
```

100 %

Results | Messages

	PMTD_Avg_DTI
1	13.3

```sql
--a) GOOD LOAN
SELECT loan_status from bank_loan_data
```

100 %

Results | Messages

	loan_status
1	Fully Paid
2	Fully Paid
3	Fully Paid
4	Fully Paid
5	Fully Paid
6	Fully Paid
7	Fully Paid
8	Charged Off
9	Fully Paid
10	Charged Off
11	Fully Paid
12	Fully Paid
13	Fully Paid
14	Fully Paid
15	Fully Paid
16	Fully Paid
17	Fully Paid

```
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
```

100 %

Results | Messages

	Good_loan_percentage
1	86

```
SELECT count(id) AS Good_loan_applications FROM bank_loan_data
WHERE loan_status IN ('Fully Paid', 'Current')
```

100 %

Results | Messages

	Good_loan_applications
1	33243

```
SELECT SUM(loan_amount) AS Good_loan_funded_amt FROM bank_loan_data
WHERE loan_status IN ('Fully Paid', 'Current')
```

100 %

Results | Messages

	Good_loan_funded_amt
1	370224850

```
SELECT SUM(total_payment) AS Good_loan_received_amt FROM bank_loan_data
WHERE loan_status IN ('Fully Paid', 'Current')
```

100 %

Results | Messages

	Good_loan_received_amt
1	435786170

```sql
--b) BAD LOAN
select count(id) AS Bad_loan_applications FROM bank_loan_data
WHERE loan_status = 'Charged Off'
```

100 %

Results | Messages

	Bad_loan_applications
1	5333

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

100 %

Results | Messages

	Bad_loan_percentage
1	13

```sql
select SUM(loan_amount) AS Bad_loan_funded_amt FROM bank_loan_data
WHERE loan_status = 'Charged Off'
```

100 %

Results | Messages

	Bad_loan_funded_amt
1	65532225

```sql
select SUM(total_payment) AS Bad_loan_received_amt FROM bank_loan_data
WHERE loan_status = 'Charged Off'
```

100 %

Results | Messages

	Bad_loan_received_amt
1	37284763

```sql
--3) LOAN STATUS

SELECT
    loan_status,
    COUNT(id) AS Total_loan_applications,
    SUM(total_payment) AS Total_amt_received,
    SUM(loan_amount) AS Total_funded_amt,
    AVG(int_rate * 100) AS Interest_rate,
    AVG(dti * 100) AS DTI
FROM bank_loan_data
GROUP BY loan_status
```

100 %

Results | Messages

	loan_status	Total_loan_applications	Total_amt_received	Total_funded_amt	Interest_rate	DTI
1	Fully Paid	32145	411586256	351358350	11.6410707918092	13.1673507557434
2	Current	1098	24199914	18866500	15.0993260800947	14.7243442736843
3	Charged Off	5333	37284763	65532225	13.8785749318289	14.0047328005517

```sql
SELECT
    loan_status,
    SUM(total_payment) AS MTD_Total_amt_received,
    SUM(loan_amount) AS MTD_Total_amt_funded
FROM bank_loan_data
WHERE MONTH(issue_date) = 12
GROUP BY loan_status
```

100 %

Results | Messages

	loan_status	MTD_Total_amt_received	MTD_Total_amt_funded
1	Fully Paid	47815851	41302025
2	Current	4934318	3946625
3	Charged Off	5324211	8732775

```sql
--BANK LOAN DATA ANAYTICS DASHBOARD 2

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_amt,
    SUM(total_payment) AS Total_received_amt
FROM bank_loan_data
GROUP BY MONTH(issue_date), DATENAME(MONTH, issue_date)
ORDER BY MONTH(issue_date)
```

100 %

Results | Messages

	Month_Number	Month_Name	Total_loan_applications	Total_funded_amt	Total_received_amt
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

```sql
SELECT
    address_state,
    COUNT(id) AS Total_loan_applications,
    SUM(loan_amount) AS Total_funded_amt,
    SUM(total_payment) AS Total_received_amt
FROM bank_loan_data
GROUP BY address_state
ORDER BY address_state
```

100 %

Results | Messages

	address_state	Total_loan_applications	Total_funded_amt	Total_received_amt
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

```sql
SELECT
    term,
    COUNT(id) AS Total_loan_applications,
    SUM(loan_amount) AS Total_funded_amt,
    SUM(total_payment) AS Total_received_amt
FROM bank_loan_data
GROUP BY term
ORDER BY term
```

100 %

Results | Messages

	term	Total_loan_applications	Total_funded_amt	Total_received_amt
1	36 months	28237	273041225	294709458
2	60 months	10339	162715850	178361475

```sql
SELECT
    emp_length,
    COUNT(id) AS Total_loan_applications,
    SUM(loan_amount) AS Total_funded_amt,
    SUM(total_payment) AS Total_received_amt
FROM bank_loan_data
GROUP BY emp_length
ORDER BY emp_length
```

100 %

Results | Messages

	emp_length	Total_loan_applications	Total_funded_amt	Total_received_amt
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

```sql
SELECT
    purpose,
    COUNT(id) AS Total_loan_applications,
    SUM(loan_amount) AS Total_funded_amt,
    SUM(total_payment) AS Total_received_amt
FROM bank_loan_data
GROUP BY purpose
ORDER BY count(id) DESC
```

100 %

Results | Messages

	purpose	Total_loan_applications	Total_funded_amt	Total_received_amt
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

```sql
SELECT
    home_ownership,
    COUNT(id) AS Total_loan_applications,
    SUM(loan_amount) AS Total_funded_amt,
    SUM(total_payment) AS Total_received_amt
FROM bank_loan_data
GROUP BY home_ownership
ORDER BY count(id) DESC
```

100 %

Results | Messages

	home_ownership	Total_loan_applications	Total_funded_amt	Total_received_amt
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

```sql
SELECT
    home_ownership,
    COUNT(id) AS Total_loan_applications,
    SUM(loan_amount) AS Total_funded_amt,
    SUM(total_payment) AS Total_received_amt
FROM bank_loan_data
WHERE grade='A' AND address_state='CA'
GROUP BY home_ownership
ORDER BY count(id) DESC
```

100 %

Results | Messages

	home_ownership	Total_loan_applications	Total_funded_amt	Total_received_amt
1	RENT	894	7359175	7680797
2	MORTGAGE	612	6276375	6490097
3	OWN	93	802100	844556
4	OTHER	2	14000	15340

BANK LOAN DATABASE ANALYSIS – PowerBI DAX

- Total Loan Applications = COUNT(bank_loan_data[id])
- MTD Loan Applications = CALCULATE(TOTALMTD([Total Loan Applications], 'Date Table'[Date]))
- PMTD Loan Applications = CALCULATE([Total Loan Applications], DATESMTD(DATEADD('Date Table'[Date],-1,MONTH)))
- MoM Loan Applications = ([MTD Loan Applications] - [PMTD Loan Applications])/[PMTD Loan Applications]

- Total Funded Amt = SUM(bank_loan_data[loan_amount])
- MTD Funded Amt = CALCULATE(TOTALMTD([Total Funded Amt], 'Date Table'[Date]))
- PMTD Total Funded Amt = CALCULATE([Total Funded Amt], DATESMTD(DATEADD('Date Table'[Date],-1,MONTH)))
- MoM Total Funded Amt = ([MTD Funded Amt] - [PMTD Total Funded Amt])/[PMTD Total Funded Amt]

- Total Amt Received = SUM(bank_loan_data[total_payment])
- MTD Total Amt Received = CALCULATE(TOTALMTD([Total Amt Received], 'Date Table'[Date]))
- PMTD Total Amt Received = CALCULATE([Total Amt Received], DATESMTD(DATEADD('Date Table'[Date],-1,MONTH)))
- MoM Total Amt Received = ([MTD Total Amt Received] - [PMTD Total Amt Received])/[PMTD Total Amt Received]

- Avg Intereset rate = AVERAGE(bank_loan_data[int_rate])
- MTD Avg Interest Rate = CALCULATE(TOTALMTD([Avg Interest rate], 'Date Table'[Date]))
- PMTD Avg Interest Rate = CALCULATE([Avg Interest rate], DATESMTD(DATEADD('Date Table'[Date],-1,MONTH))
- MoM Avg Interest Rate = ([MTD Avg Interest Rate] - [PMTD Avg Interest Rate])/[PMTD Avg Interest Rate]

- Avg DTI = AVERAGE(bank_loan_data[dti])
- MTD Avg DTI = CALCULATE(TOTALMTD([Avg DTI], 'Date Table'[Date]))
- PMTD Avg DTI = CALCULATE([Avg DTI],DATESMTD(DATEADD('Date Table'[Date],-1,MONTH)))
- MoM Avg DTI = ([MTD Avg DTI] - [PMTD Avg DTI])/[PMTD Avg DTI]

- Good Loan % = (CALCULATE([Total Loan Applications], bank_loan_data[Good Vs Bad Loan] = "Good Loan"))/[Total Loan Applications]
- Good Loan Applications = CALCULATE([Total Loan Applications], bank_loan_data[Good Vs Bad Loan] = "Good Loan")
- Good Loan Funded Amount = CALCULATE([Total Funded Amt], bank_loan_data[Good Vs Bad Loan] = "Good Loan")
- Good Loan Received Amount = CALCULATE([Total Amt Received], bank_loan_data[Good Vs Bad Loan] = "Good Loan")

- Bad Loan % = (CALCULATE([Total Loan Applications], bank_loan_data[Good Vs Bad Loan] = "Bad Loan"))/[Total Loan Applications
- Bad Loan Applications = CALCULATE([Total Loan Applications], bank_loan_data[Good Vs Bad Loan] = "Bad Loan")
- Bad Loan Funded Amount = CALCULATE([Total Funded Amt], bank_loan_data[Good Vs Bad Loan] = "Bad Loan")
- Bad Loan Received Amount = CALCULATE([Total Amt Received], bank_loan_data[Good Vs Bad Loan] = "Bad Loan")

- SELECT MEASURE = {
  ("Total Amt Received", NAMEOF('Date Table'[Total Amt Received]), 2),
  ("Total Funded Amt", NAMEOF('Date Table'[Total Funded Amt]), 1),
  ("Total Loan Applications", NAMEOF('Date Table'[Total Loan Applications]), 0)
  }

- Month number = MONTH('Date Table'[Date])
