BANK LOAN
ANALYSIS

Microsoft SQL Project

CONTENT

PROJECT OBJECTIVE

To achieve this goal, we will meticulously analyze the loan data, including factors such as interest rates, loan amounts, and repayment histories. By delving deeper into these details, we can identify patterns that may influence the bank's decision-making processes and risk assessment strategies.

Furthermore, we will utilize advanced querying techniques and data visualization tools to present our findings in a clear and concise manner. This will enable stakeholders to easily interpret the results and make informed decisions based on the insights derived from the Bank Loan Database.

In addition, we plan to implement strict data security measures to safeguard sensitive financial information and ensure compliance with regulatory guidelines. By prioritizing data integrity and confidentiality, we aim to build trust with customers and uphold the bank's reputation in the industry.

Overall, our objective is to leverage the power of data analytics to enhance the bank's operational efficiency, mitigate risks, and drive sustainable growth in a competitive financial landscape.

Total Loan Application with MTD and PMTD


```sql
-- Total Loan Application

    SELECT COUNT(id) AS Total_Applications
    FROM bank_loan_data

-- Month to Date Loan Application (MTD)

    SELECT COUNT(id) AS Total_Applications
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 12

-- Previous Month to Date Loan Application (PMTD)

    SELECT COUNT(id) AS Total_Applications
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 11
```

Total_Applications
38576

Total_Applications
4314

Total_Applications
4035

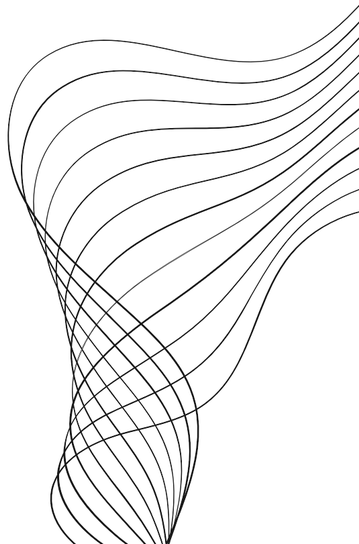
Total Funded Amount with MTD and PMTD


```sql
-- Total Funded Amount

    SELECT SUM(loan_amount) AS Total_Funded_Amount
    FROM bank_loan_data

-- MTD Total Funded Amount

    SELECT SUM(loan_amount) AS Total_Funded_Amount
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 12

-- PMTD Total Funded Amount

    SELECT SUM(loan_amount) AS Total_Funded_Amount
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 11
```

Total_Funded_Amount
435757075

Total_Funded_Amount
53981425

Total_Funded_Amount
47754825



Total Amount Recived with MTD and PMTD


```sql
-- Total Amount Recived

    SELECT SUM(total_payment) AS Total_Amount_Collected
    FROM bank_loan_data

-- MTD Total Amount Recived

    SELECT SUM(total_payment) AS Total_Amount_Collected
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 12

-- PMTD Total Amount Recived

    SELECT SUM(total_payment) AS Total_Amount_Collected
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 11
```

Total_Amount_Collected
473070933

Total_Amount_Collected
58074380

Total_Amount_Collected
50132030

Average Interest Rate with MTD and PMTD


```sql
-- Average Interest Rate

    SELECT AVG(int_rate)*100 AS Avg_Int_Rate
    FROM bank_loan_data

-- MTD Average Interest Rate

    SELECT AVG(int_rate)*100 AS MTD_Avg_Int_Rate
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 12

-- PMTD Average Interest Rate

    SELECT AVG(int_rate)*100 AS PMTD_Avg_Int_Rate
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 11
```

Avg_Int_Rate
12.0488314172048

MTD_Avg_Int_Rate
12.3560408676042

PMTD_Avg_Int_Rate
11.9417175498261

Average Debt to Income Ratio with MTD and PMTD


```sql
-- Average Debt to Income Ratio

    SELECT AVG(dti)*100 AS Avg_DTI
    FROM bank_loan_data

-- MTD Average Debt to Income Ratio

    SELECT AVG(dti)*100 AS MTD_Avg_DTI
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 12

-- PMTD Average Debt to Income Ratio

    SELECT AVG(dti)*100 AS PMTD_Avg_DTI
    FROM bank_loan_data
    WHERE MONTH(issue_date) = 11
```

Avg_DTI
13.3274331211432

MTD_Avg_DTI
13.6655377880425

PMTD_Avg_DTI
13.3027335836364

Good Loan Percentage and Application


```sql
-- Good Loan 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 bank_loan_data

-- Good Loan Application

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

Good_Loan_Percentage
86.175342181667

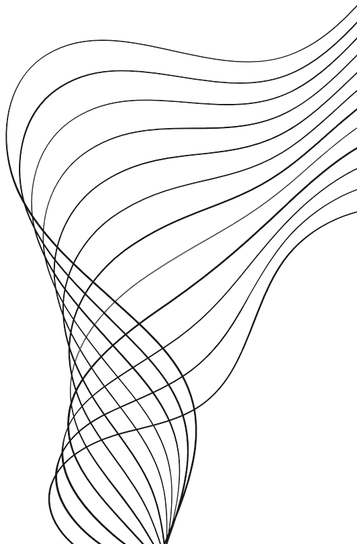
Good_Loan_Applications
33243

Good Loan Funded Amount and Received Amount


```sql
-- Good Loan Funded Amount

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

-- Good Loan Amount Received

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

Good_Loan_Funded_amount
370224850

Good_Loan_amount_received
435786170

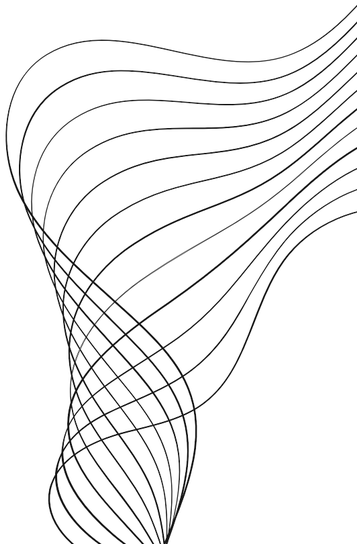


Bad Loan Percentage and Application


```sql
-- Bad Loan Percentage

    SELECT
    (COUNT(CASE WHEN loan_status = 'Charged Off' THEN id END) * 100.0) /
    COUNT(id) AS Bad_Loan_Percentage
    FROM bank_loan_data

-- Bad Loan Application

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

Bad_Loan_Percentage
13.824657818332

Bad_Loan_Applications
5333



Bad Loan Funded Amount and Received Amount


```sql
-- Bad Loan Funded Amount

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

-- Bad Loan Amount Recived

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

Bad_Loan_Funded_amount
65532225

Bad_Loan_amount_received
37284763

Loan Status Analysis

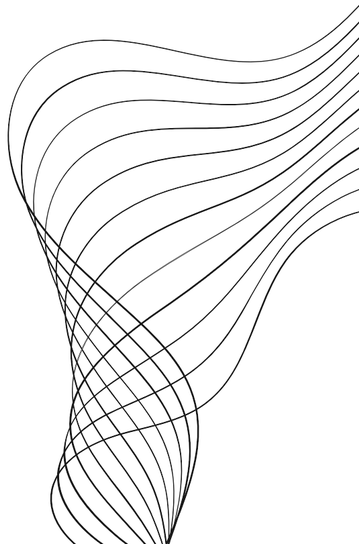

```sql
SELECT
    loan_status,
    COUNT(id) AS LoanCount,
    SUM(total_payment) AS Total_Amount_Received,
    SUM(loan_amount) AS Total_Funded_Amount,
    AVG(int_rate * 100) AS Interest_Rate,
    AVG(dti * 100) AS DTI
FROM
    bank_loan_data
GROUP BY
    loan_status
```

	loan_status	LoanCount	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

Loan Status Analysis


```sql
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
Fully Paid	47815851	41302025
Charged Off	5324211	8732775
Current	4934318	3946625



Monthly Trend Analysis


```sql
SELECT
    MONTH(issue_date) AS Month_Munber,
    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_Amount_Received
FROM bank_loan_data
GROUP BY MONTH(issue_date), DATENAME(MONTH, issue_date)
ORDER BY MONTH(issue_date)
```

	Month_Munber	Month_name	Total_Loan_Applications	Total_Funded_Amount	Total_Amount_Received
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

State-wise Analysis


```sql
SELECT
    address_state AS State,
    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 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-wise Analysis


```sql
SELECT
    term AS 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_Amount_Received
1	36 months	28237	273041225	294709458
2	60 months	10339	162715850	178361475

Employee Length-wise Analysis


```sql
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
```

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

Purpose-wise Analysis


```sql
SELECT
    purpose AS 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 purpose
```

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

Home Ownership-wise Analysis


```sql
SELECT
    home_ownership AS 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 home_ownership
```

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

SOFTWARE USED

01 Microsoft SQL Server

02 SQL Server Management Studio

03 Microsoft PowerPoint

ABOUT ME

Hello! My name is Rakib Hasan, and I am a dedicated and detail-oriented Data Analyst with a strong passion for uncovering insights and driving decisions through data. With a solid foundation in SQL, Excel, and Power BI, I possess the technical skills required to extract, manipulate, and visualize data effectively.

/rakibhasanrob

/rakibhasanrob

THANK YOU

Presented By : Raklb Hasan

/ rakibhasanrob