Banking Loan Data Analysis

Finance Domain

Excel+Power BI +MySql

GitHub Id

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BY

Alipriya Ghosh

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Software Utilized

Microsoft Excel

1.Cleaned raw dataset in Excel by removing duplicates, errors, and irrelevant fields.
2.Corrected data types to ensure compatibility with SQL
3.Formatted all date columns into YYYY-MM-DD structure for MySQL integration.
4.Converted the cleaned dataset into CSV format for seamless import into MySQL.
5.Created structured MySQL tables with appropriate data types and constraints.
6.Imported the cleaned CSV file into MySQL for use in queries and analysis.
7.Validated the migrated data to ensure accuracy, consistency, and reliability.

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Software Utilized

MySQL

1. Imported the cleaned CSV file into MySQL.
- Calculated Key Performance Indicators (KPIs) such as:
- Total Loan Applications
- Total Funded Amount
- Total Amount Received
- Average Interest Rate
- Average Debt-to-Income Ratio (DTI)
- Good Loan vs Bad Loan KPI's

2. Calculations to create charts for Power BI
- Monthly Trends by Issue Date
- Regional Analysis by State
- Loan Term Analysis
- Employee Length Analysis
- Loan Purpose Breakdown
- Home Ownership Analysis

3. Stored queries for further use in dashboards and reporting.

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KPI'S

1. Total Loan Applications.

```
Select count(distinct id) as
total_LoanApplication
from  Bank;
```

total_LoanApplication
38576

1b. Total Loan Applications: for MTD.

```
Select count(distinct id) as
total_LoanApplication
from  Bank
where  Month(issue_date)=12 and
Year(issue_date)= 2021;
```

total_LoanApplication
4314

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KPI'S

1c. Total Loan Applications for PMTD.

```
Select count(distinct id) as
total_LoanApplication  from  Bank
where Month(issue_date)=11  and
Year(issue_date)= 2021;
```

total_LoanApplication
4035

2.Total Funded Amount from bank.

```
Select sum(loan_amount) as
Total_funded_amount from bank ;
```

Total_funded_amount
435757075

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2a.Total Funded Amount on MTD.

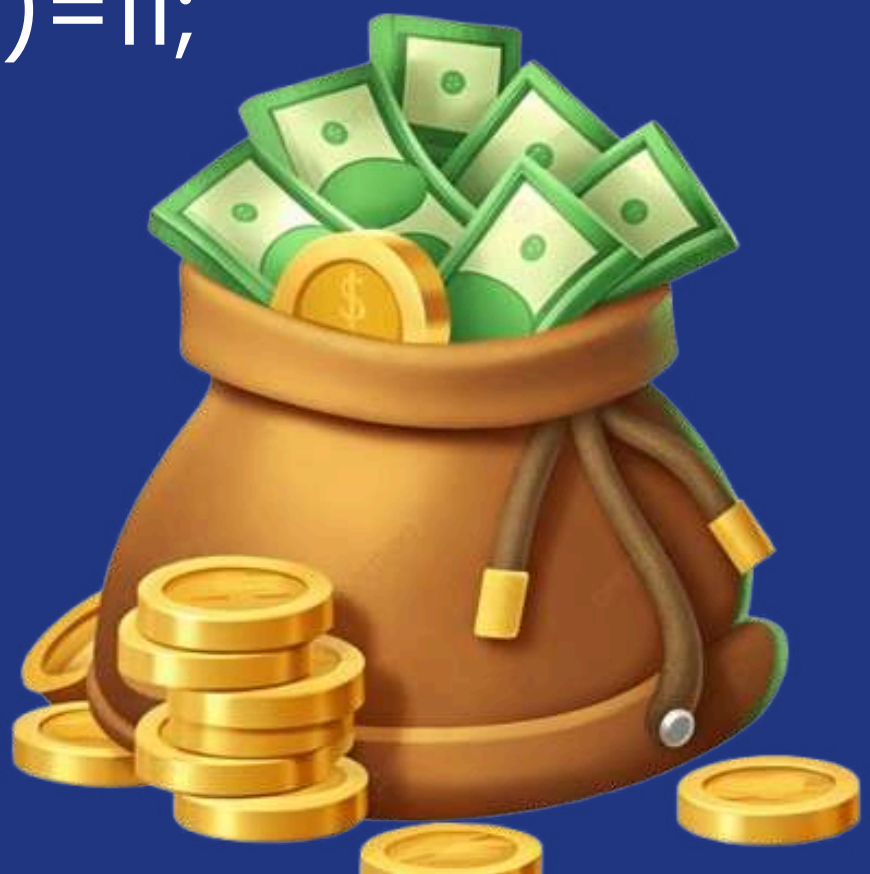
```
Select sum(loan_amount) as
Total_funded_amount from bank
where month(issue_date) =12;
```

Total_funded_amount
5398 1425

2b.Total Funded Amount on PMTD.

```
Select sum(loan_amount) as
Total_funded_amount from bank
where Month(issue_date)=11;
```

Total_funded_amount
4775 4825



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3.Total Amount Received by bank.

```
Select sum(total_payment) as
Total_fund_recieved from Bank;
```

Total_fund_recieved
473070933

3a.Total Amount Received on MTD.

```
Select sum(total_payment) as
MTD_Total_recieved from Bank
where month(issue_date) =12;
```

MTD_Total_recieved
58074380

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3b.Total Amount Received on PMTD.

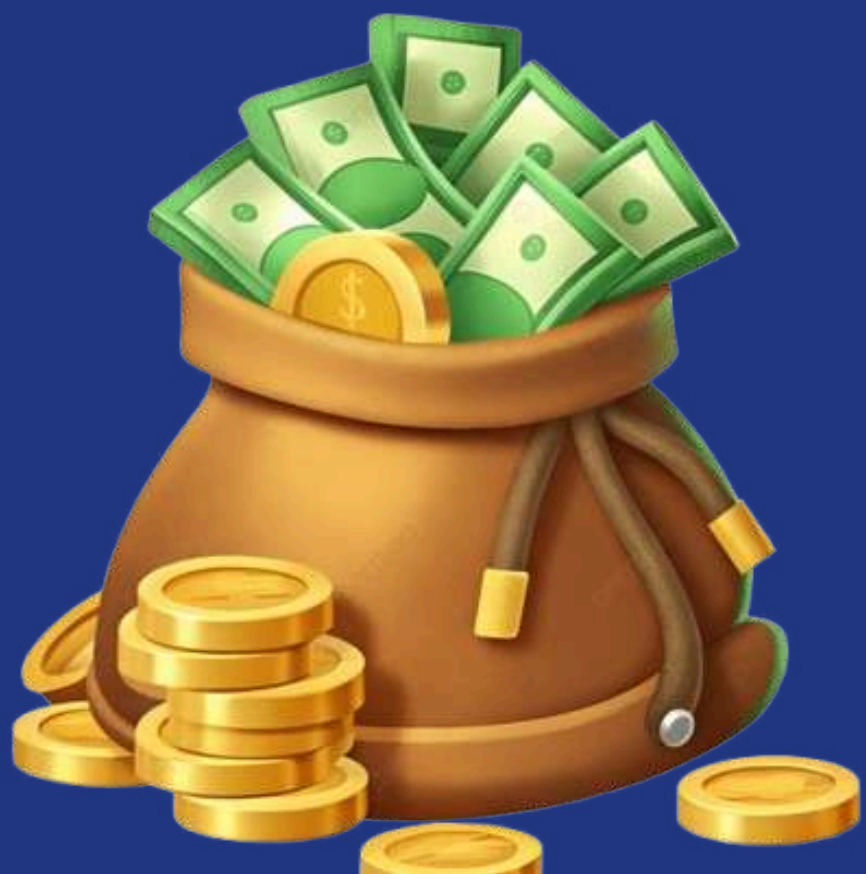
```
Select sum(total_payment)
PMTD_Total_Recieved  from Bank
where month(issue_date) =11;
```

PMTD_Total_Recieved
50132030

4. Average Interest Rate

```
Select sum(int_rate) as Avg_rate
from bank;
```

Avg_rate
4647.957199999966



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4a. Average Interest Rate on MTD.

```
Select sum(int_rate) as MTD_Avg_rate
from bank
where month(issue_date) =12;
```

MTD_Avg_rate
533.039599999972

4b.Average Interest Rate on PMTD.

```
Select sum(int_rate) as PMTD_Avg_rate
from bank
where month(issue_date) =11;
```

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5: Average Debt-to-Income Ratio.

```
Select sum(dti) as Avg_dti  from Bank;
```

Avg_dti
5141.190600000006

5a: Average Debt-to-Income Ratio (MTD).

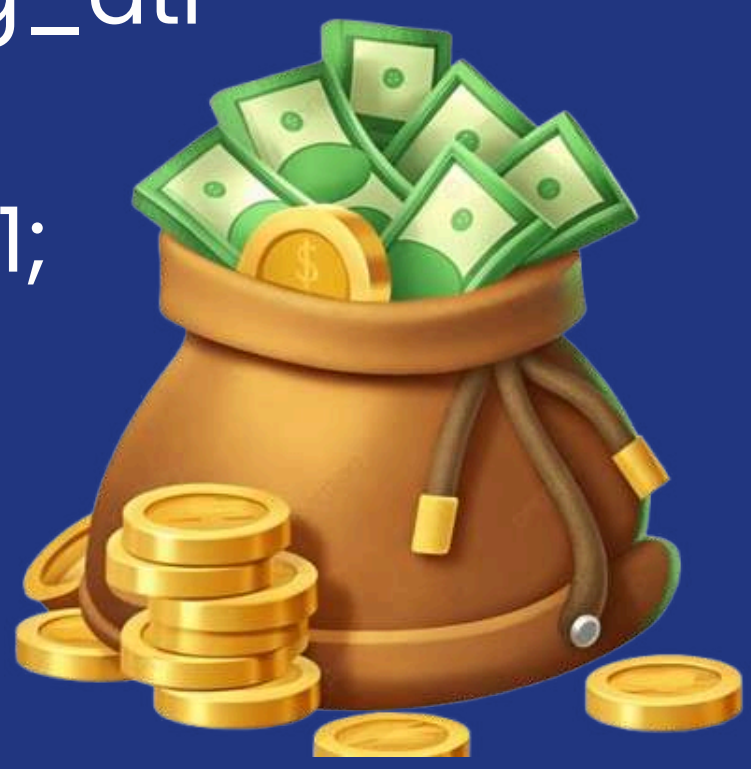
```
Select sum(dti) as MTD_Avg_dti
from Bank
where month(issue_date) =12;
```

MTD_Avg_dti
589.531300000008

5b Average Debt-to-Income Ratio (PMTD).

```
Select sum(dti) as PMTD_Avg_dti
from Bank
where month(issue_date) =11;
```

PMTD_Avg_dti
536.765300000018



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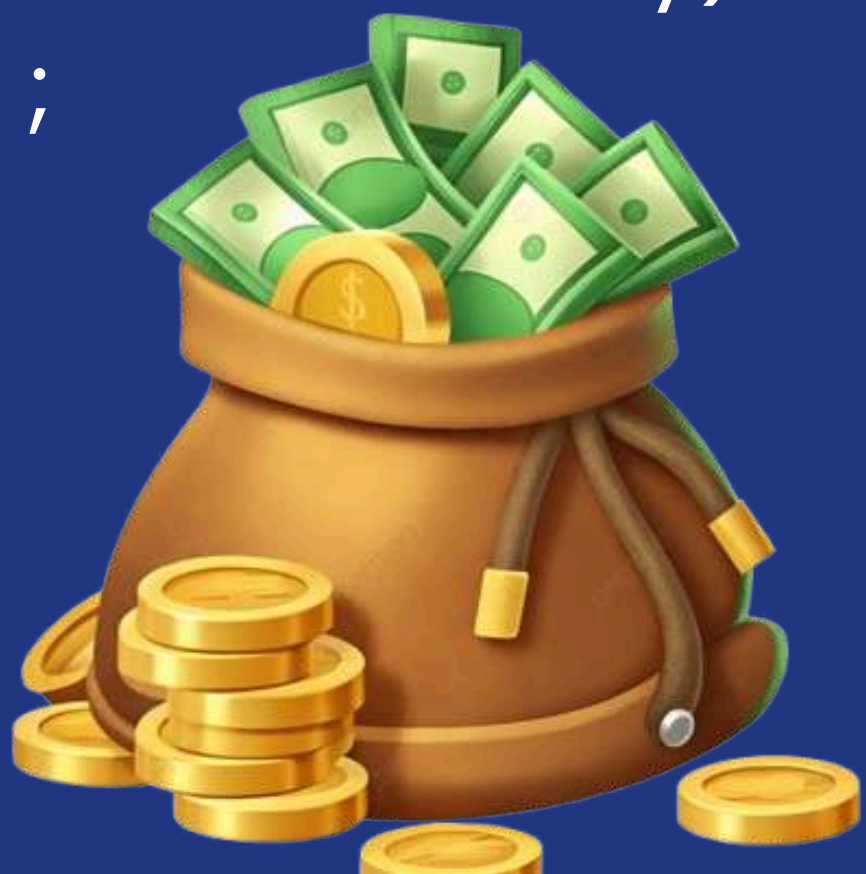
6 Good Loan Application Percentage

```
With loan_summary as(
    Select  count(*) as total_loan ,
    Count(case when loan_status in ('Fully
Paid','Current') Then 1
    end ) as good_loan_count
    from bank ) ,
    Percentage as (Select
(good_loan_count/total_loan )*100 as
Percentage_amnt from loan_summary)
 Select* from percentage ;
```

Percentage_amnt
86.1753



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7.Good Loan Applications

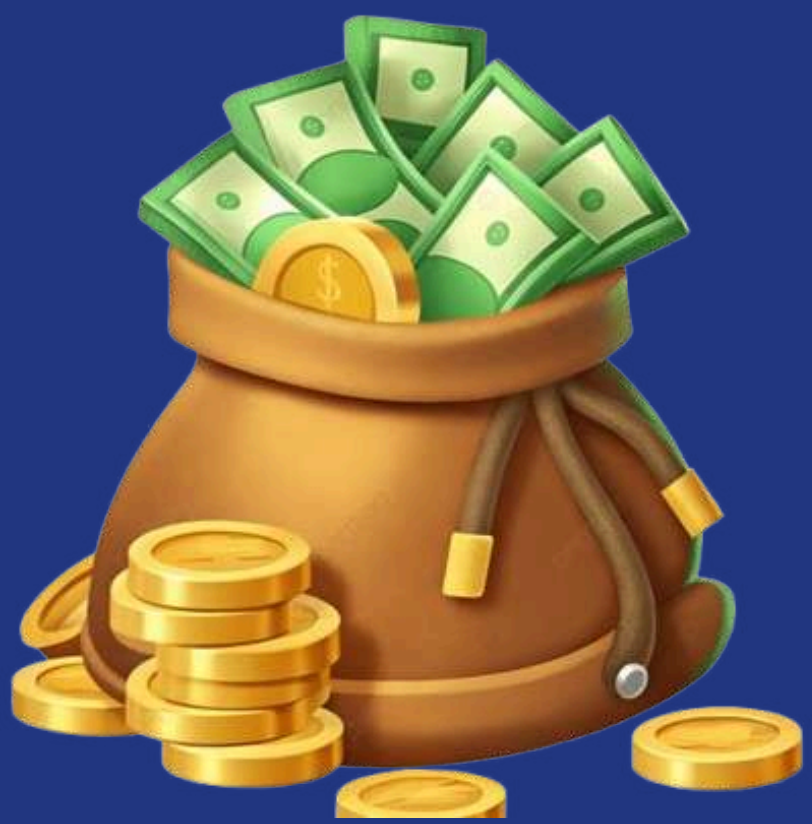
```
Select Count(case  when loan_status in
('Fully Paid' , 'Current') Then 1 end ) as
good_loan_application from bank;
```

good_loan_application
33243

8. Loan Funded Amount.

```
Select um(loan_amount)  as
funded_amnt  from bank
where loan_status in ('Fully Paid' , 'Current')
```

funded_amnt
370224850



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9.Good Loan Total Received Amount.

```
Select sum(total_payment) as
funded_amnt_recieved from bank
where loan_status in ('Fully Paid','Current');
```

funded_amnt_recieved
435786170

10: Bad Loan Applications.

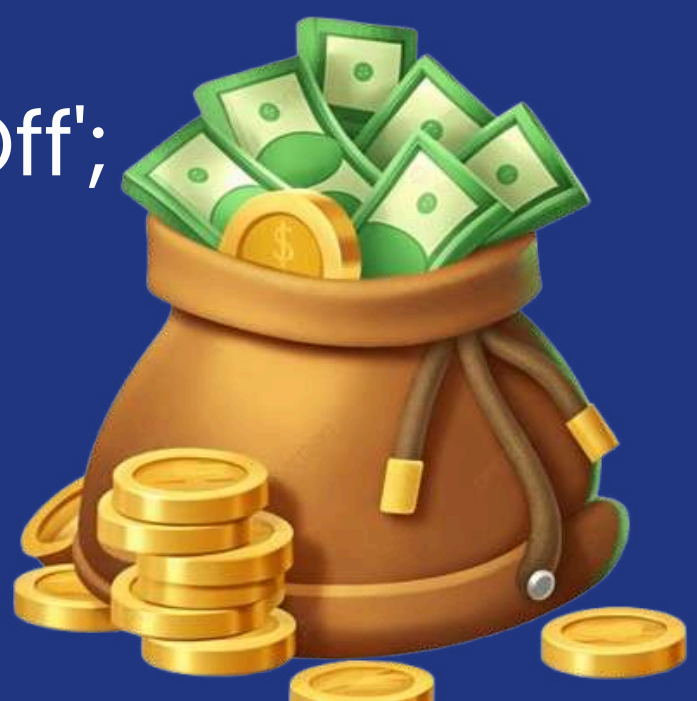
```
Select Count(case  when loan_status in
('Charged Off') Then 1 end ) as
bad_loan_application from bank;
```

bad_loan_application
5333

11: Loan Funded Amount.

```
Select  Sum(loan_amount)  as  funded_amnt
from bank
where loan_status ='Charged Off';
```

funded_amnt
6532225



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12: Good Loan Total Received Amount.

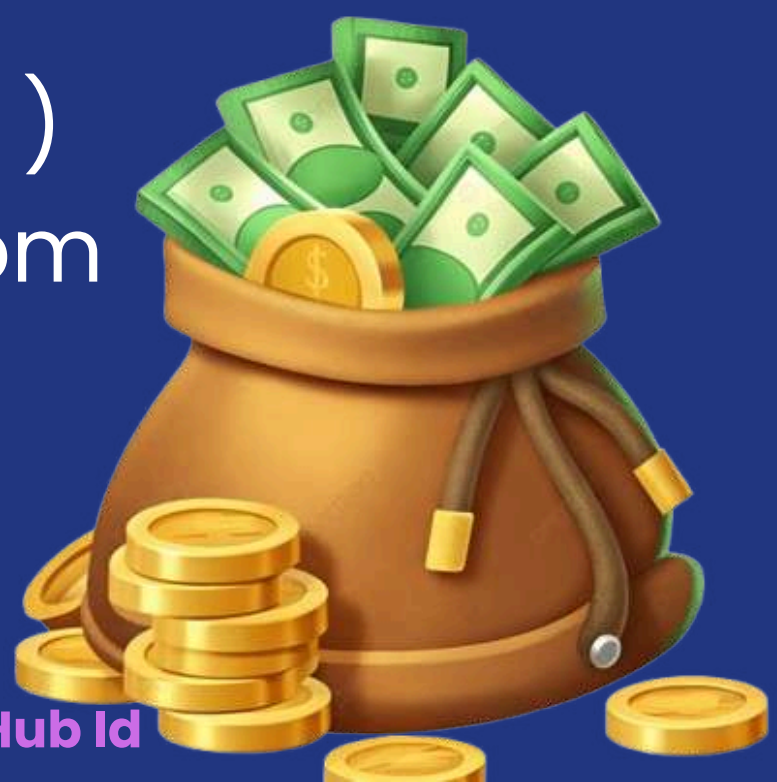
```
Select sum(total_payment)  as
funded_amnt_recieved from bank
where loan_status ='Charged Off';
```

funded_amnt_recieved
37284763

13: Bad Loan Application Percentage

```
With loan_summary as(
    Select  count(*) as total_loan ,
    Count(case  when loan_status in
('Charged Off') Then 1
    end ) as bad_loan_count from bank ) ,
Percentage as ( Select
(bad_loan_count/total_loan )
*100 as  Percentage_amnt from
loan_summary)
 Select* from percentage ;
```

Percentage_amnt
13.8247



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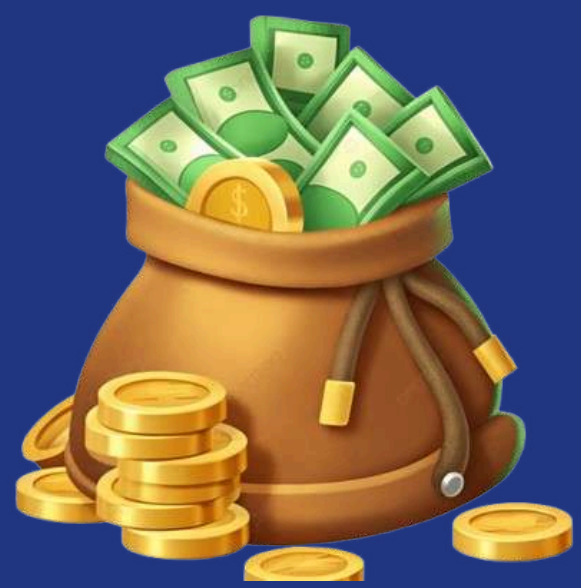
14: Loan Status

```
Select loan_status , count(id) as
total_application ,
        Sum(loan_amount) as funded_amnt,
        Sum(total_payment) as
Recieved_payment,
        Sum(int_rate) as Avg_intRate,
        Sum(dti) as Avg_dti
from bank
group by loan_status ;
```

loan_status	total_application	funded_amnt	Recieved_payment	Avg_intRate	Avg_dti
Charged Off	5333	65532225	37284763	740.1444000000001	746.8724000000034
Fully Paid	32145	351358350	411586256	3742.022200000016	4232.644900000001
Current	1098	18866500	24199914	165.79060000000007	161.67329999999993



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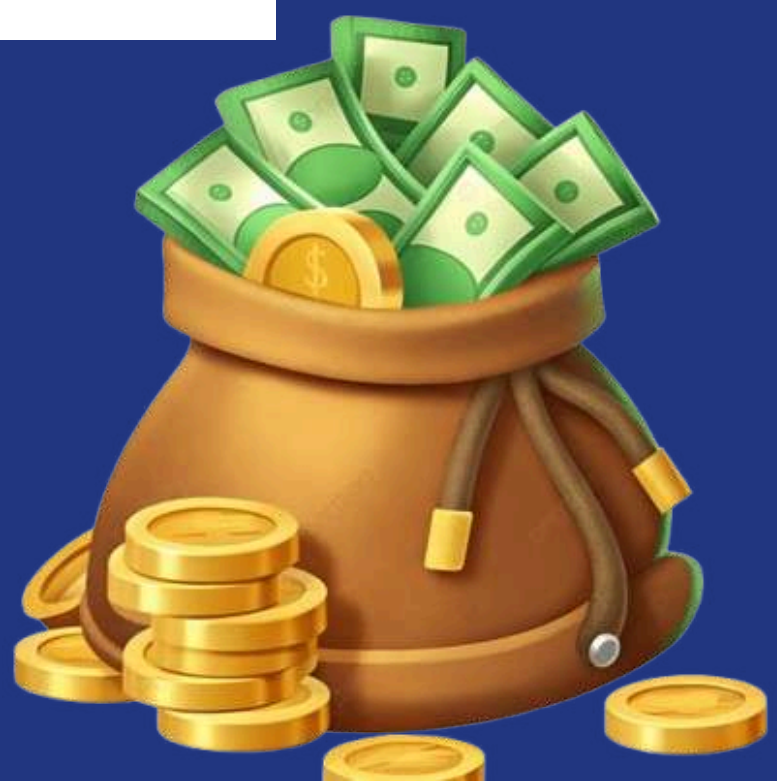
15: Loan Status on Month-to-date.

```
Select loan_status ,
Sum(loan_amount) as MTD_funded_amnt,
Sum(total_payment) as
MTD_Recieved_payment
from bank
WHERE MONTH(issue_date) = 12
GROUP BY loan_status ;
```

loan_status	MTD_funded_amnt	MTD_Recieved_payment
Current	3946625	4934318
Charged Off	8732775	5324211
Fully Paid	41302025	47815851



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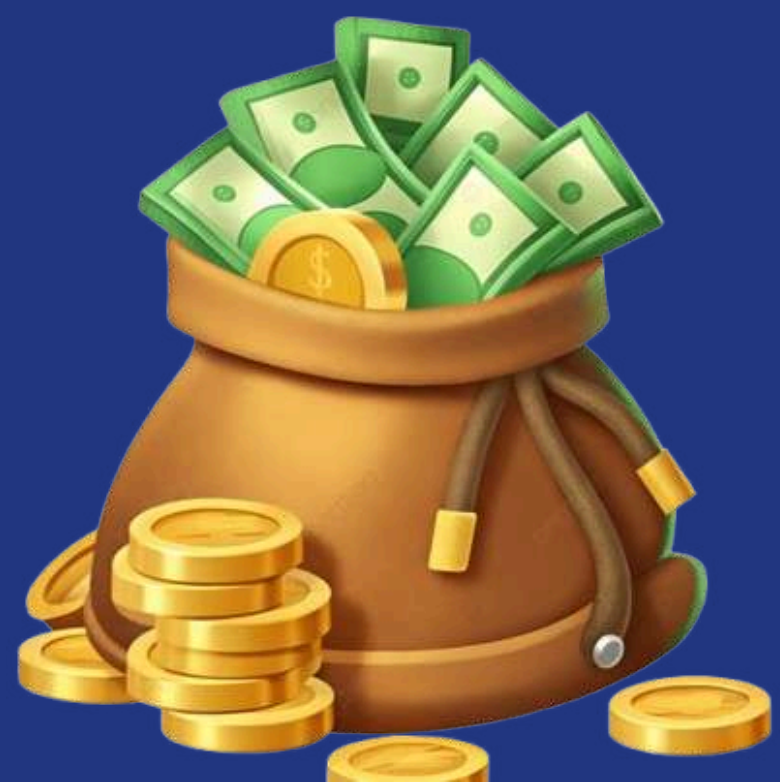
16. Monthly Trends by Issue Date.

```
select month(issue_date) As
month_number,
monthname(issue_date) As month_name,
count(id) as total_application,
sum(loan_amount) as total_funded_Amnt,
sum(total_payment) as
total_Amnt_Received
from bank
group by month_number,month_name
order by month_number;
```

month_number	month_name	total_application	total_funded_Amnt	total_Amnt_Received
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



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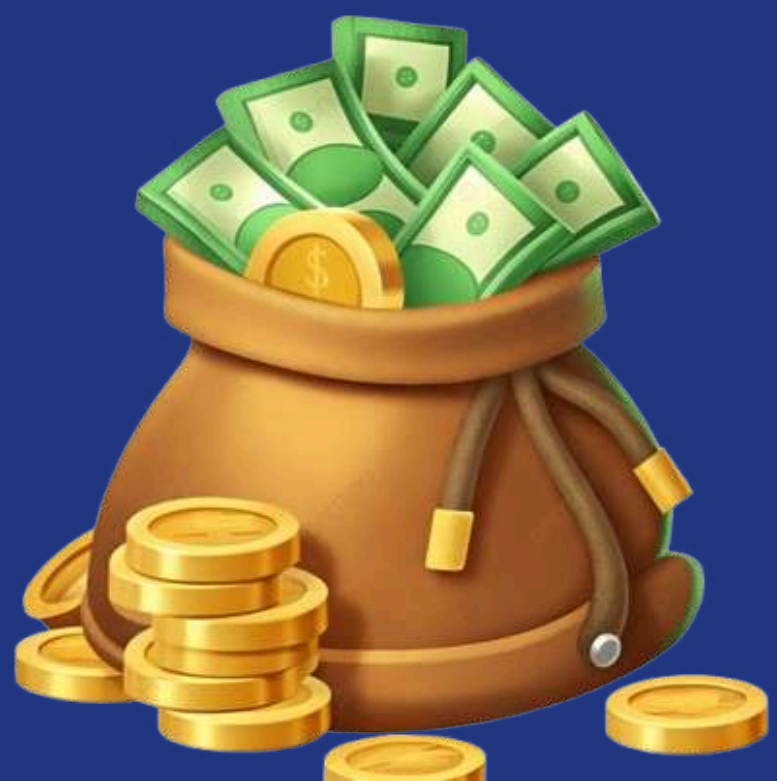
17: Loan Term Analysis

```
select term as loan_term,
count(id) as total_application,
sum(loan_amount) as total_funded_Amnt,
sum(total_payment) as
total_Amnt_Received
from bank
group by loan_term
order by loan_term;
```

loan_term	total_application	total_funded_Amnt	total_Amnt_Received
36 months	28237	273041225	294709458
60 months	10339	162715850	178361475



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18: Employee Length Analysis.

```
select emp_length,
count(id) as total_application,
sum(loan_amount) as total_funded_Amnt,
sum(total_payment) as
total_Amnt_Received
from bank
group by emp_length
order by emp_length;
```

emp_length	total_application	total_funded_Amnt	total_Amnt_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

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19: Loan Purpose Breakdown

```
select purpose,
count(id) as total_application,
sum(loan_amount) as total_funded_Amnt,
sum(total_payment) as
total_Amnt_Received
from bank
group by purpose
order by purpose;
```

purpose	total_application	total_funded_Amnt	total_Amnt_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

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20: Home Ownership Analysis

```
select home_ownership,
count(id) as total_application,
sum(loan_amount) as total_funded_Amnt,
sum(total_payment) as
total_Amnt_Received
from bank
group by home_ownership
order by home_ownership;
```

home_ownership	total_application	total_funded_Amnt	total_Amnt_Received
MORTGAGE	17198	219329150	238474438
NONE	3	16800	19053
OTHER	98	1044975	1025257
OWN	2838	29597675	31729129
RENT	18439	185768475	201823056

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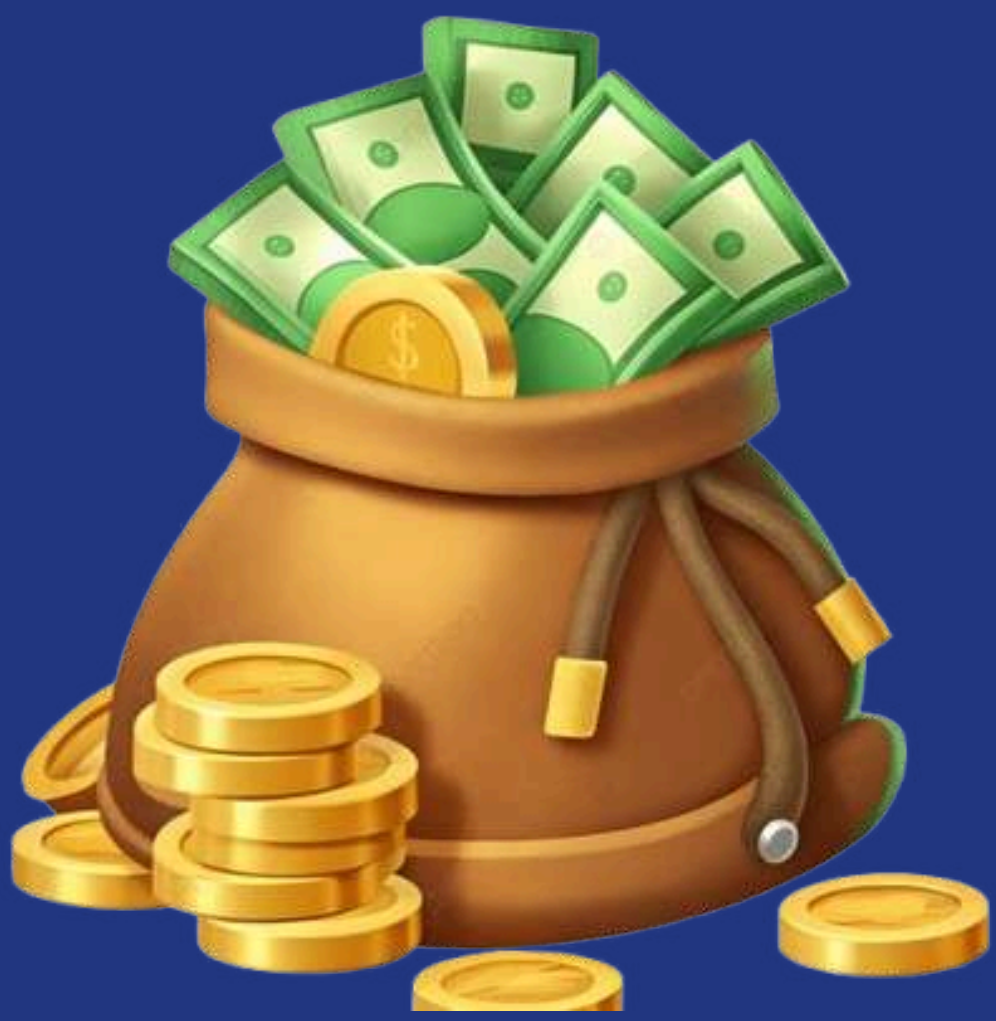
21: Regional Analysis by State.

```
select address_state as state,
count(id) as total_application,
sum(loan_amount) as total_funded_Amnt,
sum(total_payment) as
total_Amnt_Received
from bank
group by state
order by state;
```

state	total_application	total_funded_Amnt	total_Amnt_Received
AK	78	1031800	1108570
AL	432	4949225	5492272
AR	236	2529700	2777875
AZ	833	9206000	10041986
CA	6894	78484125	83901234
CO	770	8976000	9845810
CT	730	8435575	9357612
DC	214	2652350	2921854
DE	110	1138100	1269136
FL	2773	30046125	31601905
GA	1355	15480325	16728040
HI	170	1850525	2080184
IA	5	56450	64482
ID	6	59750	65329
IL	1486	17124225	18875941
IN	9	86225	85521
KS	260	2872325	3247394



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The End

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