**CAPSTONE -PROJECT**

**BANK LOAN REPORT – QUERY DOCUMENT**

1. **SUMMARY:**
2. **KPI’S :**
3. **Loan Applications :**

* **Total Loan Applications:**

SELECT COUNT (id) AS TOTAL\_LOAN\_APPLICATIONS FROM dbo.financial\_loan



* **Previous MTD (Month-to-date) Loan Applications :**

SELECT COUNT (id) AS PMTD\_TOTAL\_LOAN\_APPLICATIONS FROM dbo.financial\_loan

WHERE MONTH (issue\_date) = 8;



1. **Fund Amount:**

* **Total Fund Amount:**

SELECT SUM (loan\_amount) AS TOTAL\_FUNDED\_AMOUNT FROM dbo. financial\_loan



* **Current MTD Total Funded Amount:**

SELECT SUM (loan\_amount) AS CMTD\_TOTAL\_FUNDED\_AMOUNT FROM dbo.financial\_loan

WHERE MONTH (issue\_date) = 9 AND YEAR (issue\_date) =2021

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* **Previous MTD Total Funded(loan) Amount :**

SELECT SUM (loan\_amount) AS PMTD\_TOTAL\_FUNDED\_AMOUNT FROM dbo.financial\_loan

WHERE MONTH (issue\_date) = 8 AND YEAR (issue\_date) =2021

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1. **Amount Received:**

* **Total Amount Received:**

SELECT SUM (total payment) AS TOTAL\_AMOUNT\_RECEIVED FROM dbo.financial\_loan



* **Current MTD Total Amount Received:**

SELECT SUM (total\_payment) AS CMTD\_TOTAL\_AMOUNT\_RECEIVED FROM dbo.financial\_loan

WHERE MONTH (issue\_date) = 9 AND YEAR (issue\_date) =2021



* **Previous MTD Total Amount Received:**

SELECT SUM (total\_payment) AS PMTD\_TOTAL\_AMOUNT\_RECEIVED FROM dbo.financial\_loan

WHERE MONTH (issue\_date) = 8 AND YEAR (issue\_date) =2021



1. **Interest Rate:**

* **Average Interest Rate:**

SELECT AVG (int\_rate) \* 100 AS AVG\_INT\_RATE FROM dbo.financial\_loan



* **Round Off the above average:**

SELECT ROUND (AVG (int\_rate),4) \* 100 AS AVG\_INT\_RATE FROM dbo.financial\_loan



* **Current MTD Average Interest Rate:**

SELECT ROUND (AVG (int\_rate),4) \* 100 AS CMTD\_AVG\_INT\_RATE FROM dbo.financial\_loan

WHERE MONTH (issue\_date) =9 AND YEAR (issue\_date) =2021



* **Previous MTD Average Interest Rate:**

SELECT ROUND (AVG (int\_rate),4) \* 100 AS PMTD\_AVG\_INT\_RATE FROM dbo.financial\_loan

WHERE MONTH (issue\_date) =8 AND YEAR (issue\_date) =2021



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1. **Debt-to-income (DTI):**

* **Average DTI:**

SELECT ROUND (AVG (dti),4) AS AVG\_DTI FROM dbo.financial\_loan

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* **MTD AVG DTI:**

SELECT ROUND (AVG (dti),4) AS CMTD\_AVG\_DTI FROM dbo.financial\_loan

WHERE MONTH (issue\_date) =9 AND YEAR (issue\_date) =2021

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* **Previous MTD AVG DTI:**

SELECT ROUND (AVG (dti),4) \*100 AS PMTD\_AVG\_DTI FROM dbo.financial\_loan

WHERE MONTH (issue\_date) =8 AND YEAR (issue\_date) =2021

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1. **GOOD LOAN KPI’s :**

* **Percentage of good loan :**

SELECT

(COUNT (CASE WHEN loan\_status ='Fully Paid' OR loan\_status='Current' THEN id END) \*100)

/

COUNT (id) AS GOOD\_LOAN\_PERCENTAGE

FROM dbo.financial\_loan

****

* **Applications of good loan**:

SELECT COUNT (id) AS GOOD\_LOAN\_APPLICATIONS FROM dbo.financial\_loan

WHERE loan\_status = 'Fully Paid' OR loan\_status = 'Current'



* **Good Loan Funded Amount**

SELECT SUM (loan\_amount) AS GOOD\_LOAN\_FUNDED\_AMOUNT FROM dbo.financial\_loan

WHERE loan\_status = 'Fully Paid' OR loan\_status = 'Current'



* **Good Loan Amount Received**

SELECT SUM (total\_payment) AS GOOD\_LOAN\_AMOUNT\_RECEIVED FROM dbo.financial\_loan

WHERE loan\_status = 'Fully Paid' OR loan\_status = 'Current'



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1. **BAD LOAN ISSUED -> KPI’s:**

* **Percentage of Bad Loan :**

SELECT

    (COUNT (CASE WHEN loan\_status = 'Charged Off' THEN id END) \* 100.0) /

COUNT (id) AS BAD\_LOAN\_PERCENTAGE

FROM dbo.financial\_loan



* **Applications of bad loan :**

SELECT COUNT (id) AS BAD\_LOAN\_APPLICATIONS FROM dbo.financial\_loan

WHERE loan\_status = 'Charged Off'

****

* **Amount received of bad loan :**

SELECT SUM (total\_payment) AS BAD\_LOAN\_AMOUNT\_RECEIVED FROM dbo.financial\_loan

WHERE loan\_status = 'Charged Off'



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1. **LOAN STATUS:**

SELECT

loan\_status,

COUNT (id) AS LOAN\_COUNT,

SUM (total\_payment) AS TOTAL\_AMOUNT\_RECEIVED,

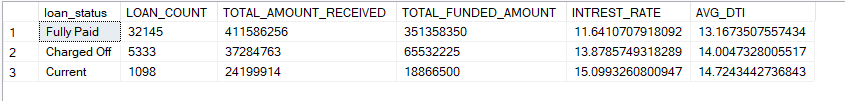
SUM (loan\_amount) AS TOTAL\_FUNDED\_AMOUNT,

AVG (int\_rate \* 100) AS INTREST\_RATE,

AVG (dti \* 100) AS AVG\_DTI

FROM dbo.financial\_loan

GROUP BY loan\_status



* **Current MTD loan Status:**

SELECT

loan\_status,

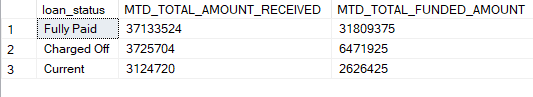
SUM (total\_payment) AS MTD\_TOTAL\_AMOUNT\_RECEIVED,

SUM (loan\_amount) AS MTD\_TOTAL\_FUNDED\_AMOUNT

FROM dbo.financial\_loan

WHERE MONTH (issue\_date) = 9

GROUP BY loan\_status



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1. **FINANCIAL (BANK) LOAN REPORT | OVERVIEW : (Charts Based)**
2. **MONTH :**

SELECT

MONTH (issue\_date) AS MONTH\_NUMBER,

DATENAME (MONTH, issue\_date) AS MONTH\_NAME,

COUNT (id) AS TOTAL\_LOAN\_APPLICATIONS,

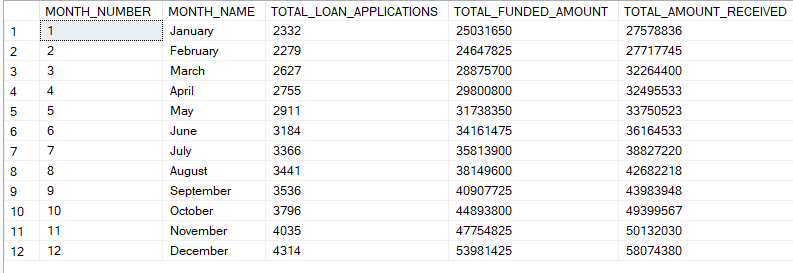
SUM (loan\_amount) AS TOTAL\_FUNDED\_AMOUNT,

SUM (total\_payment) AS TOTAL\_AMOUNT\_RECEIVED

FROM dbo.financial\_loan

GROUP BY MONTH (issue\_date), DATENAME (MONTH, issue\_date)

ORDER BY MONTH (issue\_date)



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1. **STATE :**

SELECT

address\_state AS STATE,

COUNT (id) AS TOTAL\_LOAN\_APPLICATIONS,

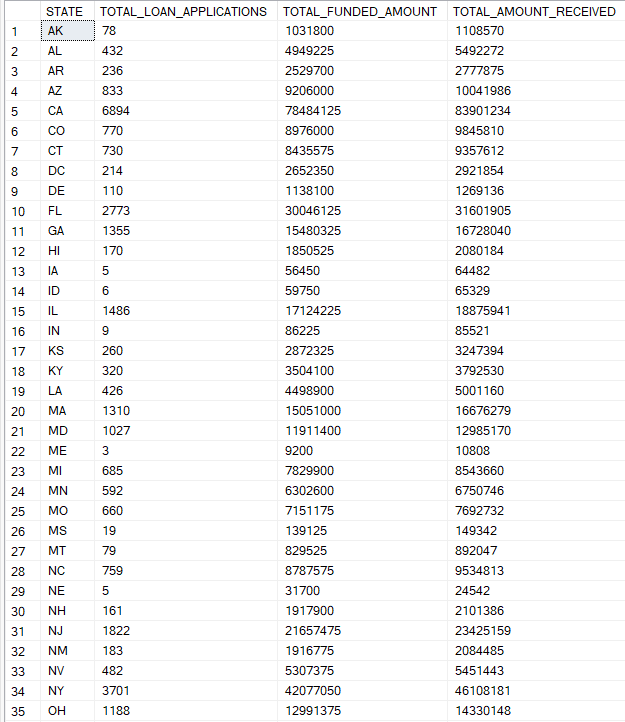
SUM (loan\_amount) AS TOTA\_FUNDED\_AMOUNT,

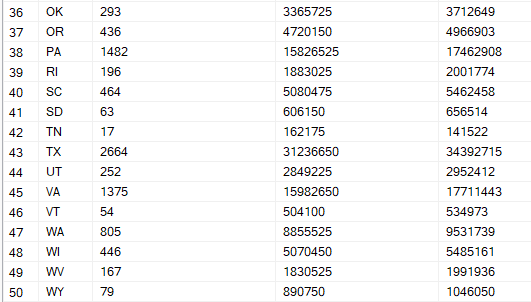
SUM (total\_payment) AS TOTAL\_AMOUNT\_RECEIVED

FROM dbo.financial\_loan

GROUP BY address\_state

ORDER BY address\_state





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1. **TERM :**

SELECT

term AS Term,

COUNT (id) AS TOTAL\_LOAN\_APPLICATIONS,

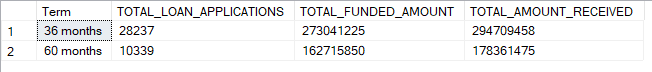
SUM (loan\_amount) AS TOTAL\_FUNDED\_AMOUNT,

SUM (total\_payment) AS TOTAL\_AMOUNT\_RECEIVED

FROM dbo.financial\_loan

GROUP BY term

ORDER BY term

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1. **EMPLOYEE LENGTH :**

SELECT

emp\_length AS EMPLOYEE\_LENGTH,

COUNT (id) AS TOTAL\_LOAN\_APPLICATIONS,

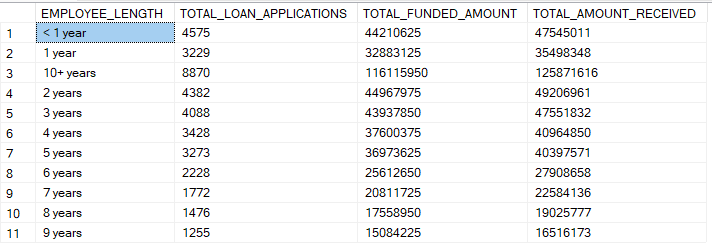
SUM (loan\_amount) AS TOTAL\_FUNDED\_AMOUNT,

SUM (total\_payment) AS TOTAL\_AMOUNT\_RECEIVED

FROM dbo.financial\_loan

GROUP BY emp\_length

ORDER BY emp\_length

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1. **PURPOSE :**

SELECT

purpose AS PURPOSE,

COUNT (id) AS TOTAL\_LOAN\_APPLICATIONS,

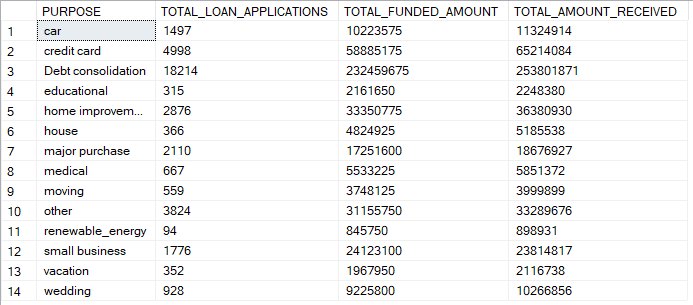
SUM (loan\_amount) AS TOTAL\_FUNDED\_AMOUNT,

SUM (total\_payment) AS TOTAL\_AMOUNT\_RECEIVED

FROM dbo.financial\_loan

GROUP BY purpose

ORDER BY purpose



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1. **HOME OWNERSHIP :**

SELECT

home\_ownership AS HOME\_OWNERSHIP,

COUNT (id) AS TOTAL\_LOAN\_APPLICATIONS,

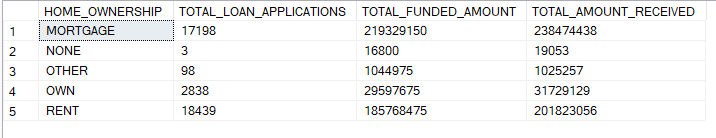
SUM (loan\_amount) AS TOTAL\_FUNDED\_AMOUNT,

SUM (total\_payment) AS TOTAL\_AMOUNT\_RECEIVED

FROM dbo.financial\_loan

GROUP BY home\_ownership

ORDER BY home\_ownership



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**NOTE :**  *I 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 (id) AS* TOTAL\_LOAN\_APPLICATIONS*,*

*SUM (loan\_amount) AS* TOTAL\_FUNDED\_AMOUNT*,*

*SUM (total\_payment) AS* TOTAL\_AMOUNT\_RECEIVED

*FROM* dbo.financial\_loan

*WHERE grade = 'A'*

*GROUP BY purpose*

*ORDER BY purpose*

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**c) Advance SQL QUERIES :**

**1. CTE (Common Table Expressions) :**

**Q-1 : Find average annual income for each home ownership type . :**

WITH CTE\_INCOME AS (

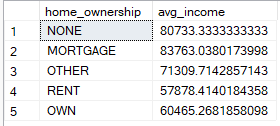
SELECT home\_ownership, AVG (annual\_income) AS avg\_income

FROM dbo.financial\_loan

GROUP BY home\_ownership

)

SELECT \* FROM IncomeCTE;

****

**Q-2: Find top 3 highest loan amounts for each grade. :**

WITH CTE\_RankedLoans AS (

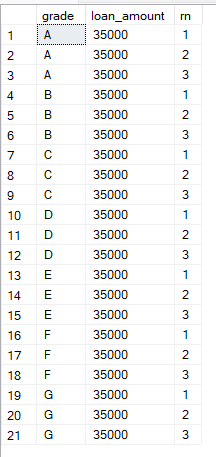
SELECT grade, loan\_amount,

ROW\_NUMBER () OVER(PARTITION BY grade ORDER BY loan\_amount DESC) AS rn

FROM dbo.financial\_loan

)

SELECT \* FROM CTE\_RankedLoans WHERE rn <= 3;

****

**Q-3: Show loan status distribution (count of each status).:**

WITH LoanStatus AS (

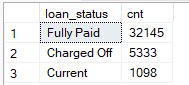
SELECT loan\_status, COUNT (\*) AS cnt

FROM dbo.financial\_loan

GROUP BY loan\_status

)

SELECT \* FROM LoanStatus;

****

**2. Subqueries:**

**Q-4: Find all borrowers who earn more than the average income.**

SELECT id, emp\_title, annual\_income

FROM dbo.financial\_loan

WHERE annual\_income > (SELECT AVG (annual\_income) FROM dbo.financial\_loan);



**Q-5: Find states where total loan issued is above the overall average loan issued per state.**

SELECT address\_state, SUM (loan\_amount) AS total\_state\_loan

FROM dbo.financial\_loan

GROUP BY address\_state

HAVING SUM (loan\_amount) > (

SELECT AVG (state\_total)

FROM (

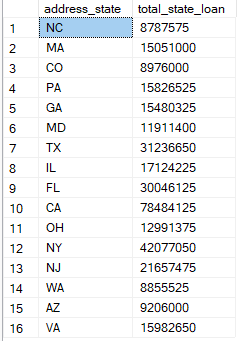
SELECT SUM (loan\_amount) AS state\_total

FROM dbo.financial\_loan

GROUP BY address\_state

) t

);

****

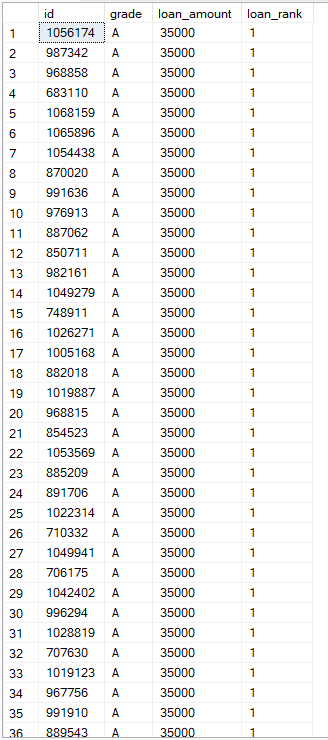
**3. WINDOW FUNCTIONS:**

**Q-6: Rank borrowers by loan amount within each grade. :**

SELECT id, grade, loan\_amount,

RANK () OVER (PARTITION BY grade ORDER BY loan\_amount DESC) AS loan\_rank

FROM dbo.financial\_loan;

****

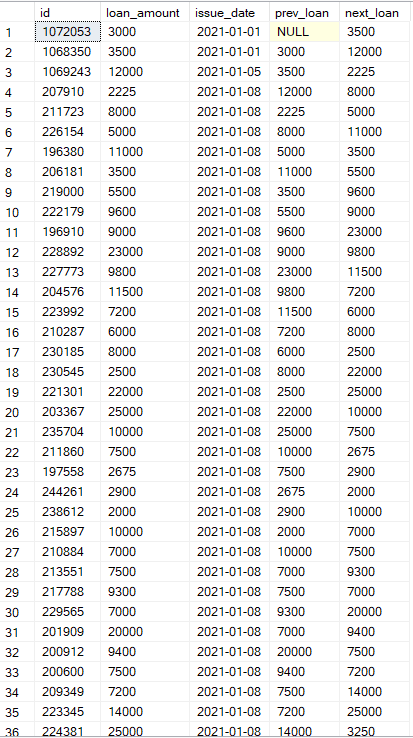
**Q-7 : Show the previous loan amount (LAG) and next loan amount (LEAD) for each borrower ordered by issue\_date. :**

SELECT id, loan\_amount, issue\_date,

LAG (loan\_amount) OVER (ORDER BY issue\_date) AS prev\_loan,

LEAD (loan\_amount) OVER (ORDER BY issue\_date) AS next\_loan

FROM dbo.financial\_loan;

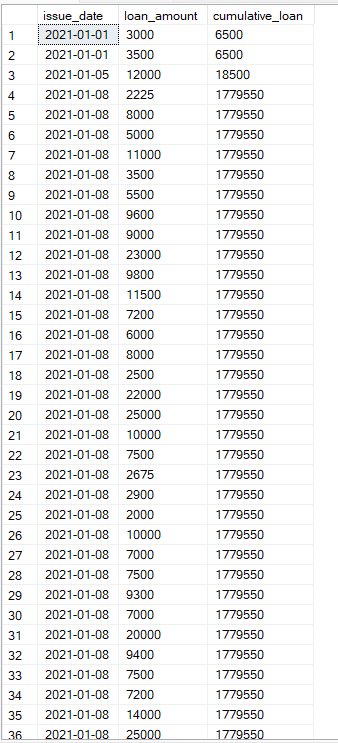
****

**Q-8: Find cumulative (running) loan amount disbursed by issue\_date. :**

SELECT issue\_date, loan\_amount,

SUM (loan\_amount) OVER (ORDER BY issue\_date) AS cumulative\_loan

FROM dbo.financial\_loan;

****

**Q-9: For each state, find borrower with the highest annual income.**

SELECT id, address\_state, annual\_income

FROM (

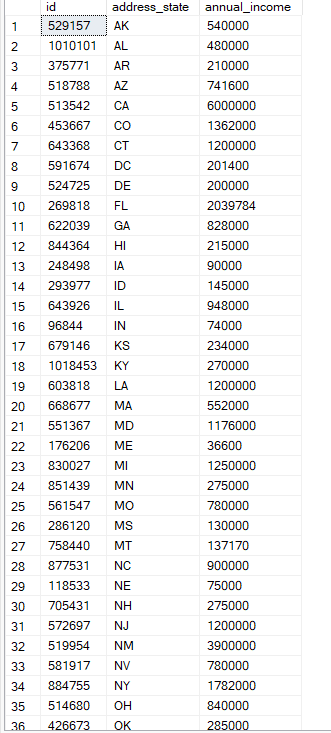
SELECT id, address\_state, annual\_income,

ROW\_NUMBER() OVER(PARTITION BY address\_state ORDER BY annual\_income DESC) AS rn

FROM dbo.financial\_loan

) t

WHERE rn = 1;

****

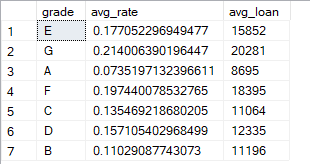
**4. AGGREGATES (GROUP BY, HAVING)**

**Q-10 : Find average interest rate and loan amount by grade.**

SELECT grade, AVG (int\_rate) AS avg\_rate, AVG (loan\_amount) AS avg\_loan

FROM dbo.financial\_loan

GROUP BY grade;

****

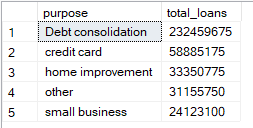
**Q-11: Find the top 5 purposes with highest total loan issued. :**

SELECT TOP 5 purpose, SUM (loan\_amount) AS total\_loans

FROM dbo.financial\_loan

GROUP BY purpose

ORDER BY total\_loans DESC;

****

**Q-12: Find states where the average annual income is greater than ₹80,000. :**

SELECT address\_state, AVG (annual\_income) AS avg\_income

FROM dbo.financial\_loan

GROUP BY address\_state

HAVING AVG (annual\_income) > 80000;

****

1. **CTAS (Create Table As Select) :**

**Q-13 :** **Create a table of all loans that are charged off.**

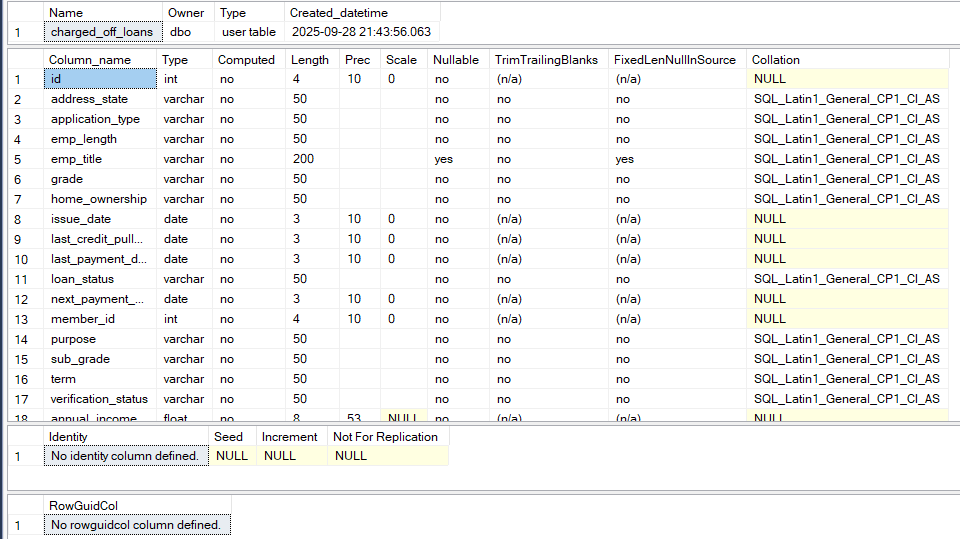
SELECT \*

INTO charged\_off\_loans

FROM dbo.financial\_loan

WHERE loan\_status = 'Charged Off';

EXEC sp\_help charged\_off\_loans;

****

**Q- 14 : Create a table of top 10 borrowers by loan amount.**

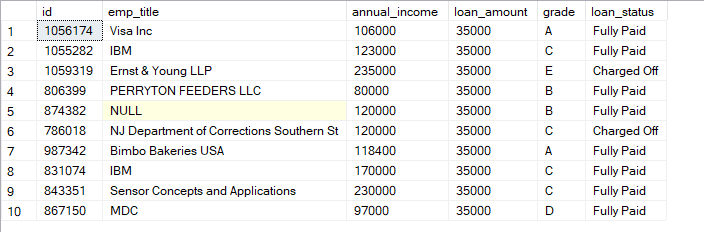
SELECT TOP 10 id, emp\_title, annual\_income, loan\_amount, grade, loan\_status

INTO top\_10\_borrowers

FROM dbo.financial\_loan

ORDER BY loan\_amount DESC;

SELECT \* FROM top\_10\_borrowers;

****