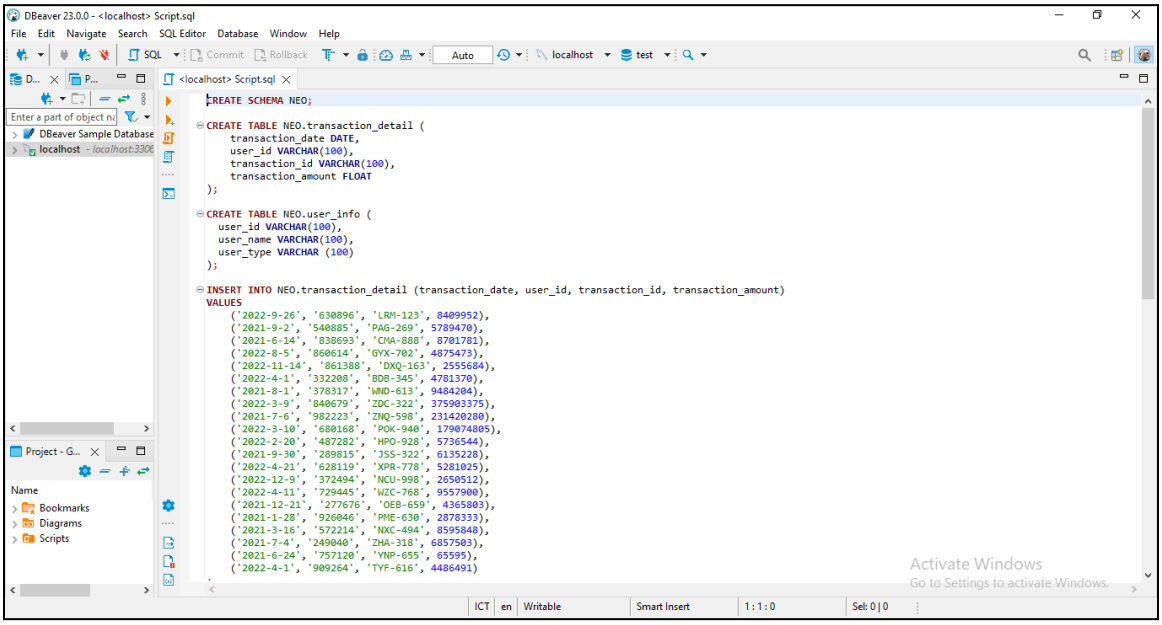
STUDY CASE

SQL TEST

(*Using DBeaver + Xampp*)



QUERY CREATE & INSERT TABLE

```
CREATE SCHEMA NEO;

CREATE TABLE NEO.transaction_detail (
  transaction_date DATE,
  user_id VARCHAR(100),
  transaction_id VARCHAR(100),
  transaction_amount FLOAT
);

CREATE TABLE NEO.user_info (
  user_id VARCHAR(100),
  user_name VARCHAR(100),
  user_type VARCHAR (100)
);

INSERT INTO NEO.transaction_detail (transaction_date, user_id, transaction_id,
transaction_amount)
VALUES
  ('2022-9-26', '630896', 'LRM-123', 8409952),
  ('2021-9-2', '540885', 'PAG-269', 5789470),
  ('2021-6-14', '838693', 'CMA-888', 8701781),
  ('2022-8-5', '860614', 'GYX-702', 4875473),
  ('2022-11-14', '861388', 'DXQ-163', 2555684),
  ('2022-4-1', '332208', 'BDB-345', 4781370),
  ('2021-8-1', '378317', 'WND-613', 9484204),
```

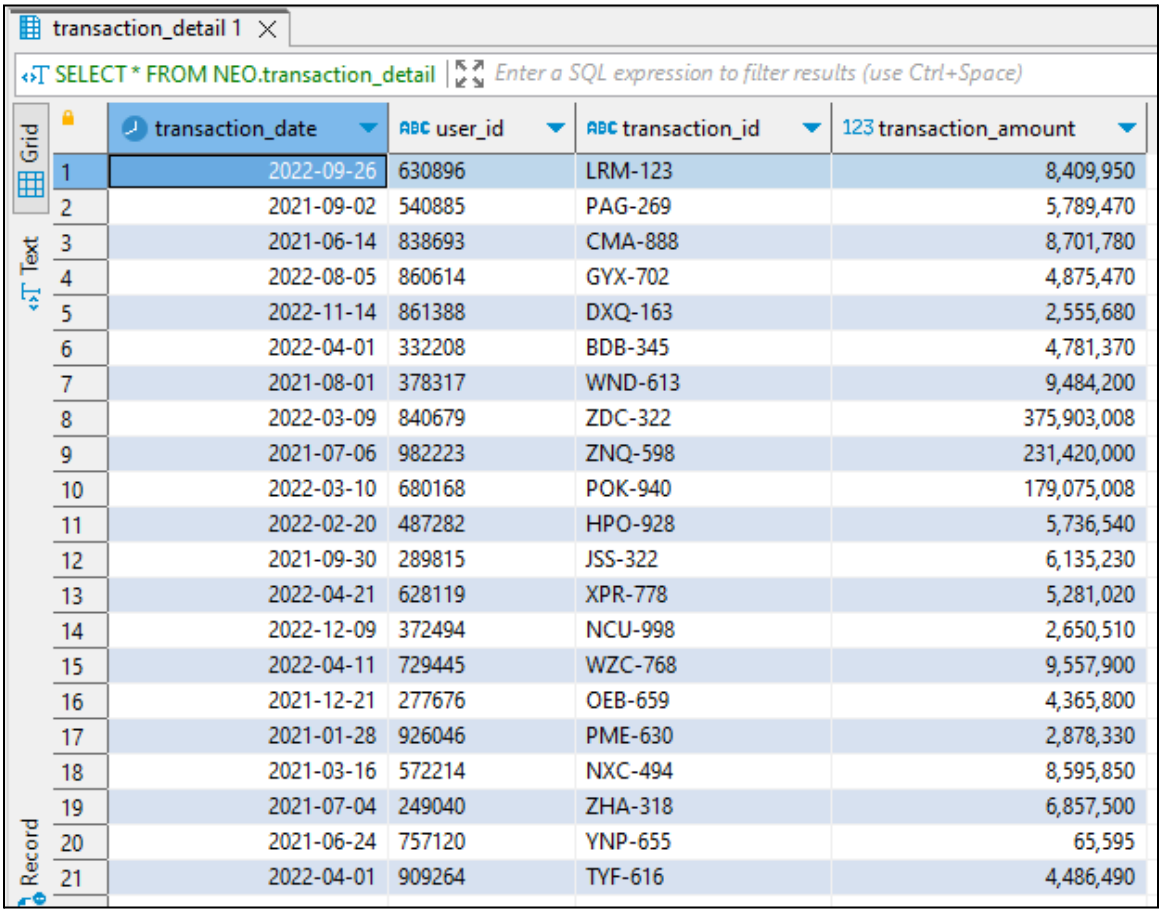
```
   ('2022-3-9', '840679', 'ZDC-322', 375903375),
   ('2021-7-6', '982223', 'ZNQ-598', 231420280),
   ('2022-3-10', '680168', 'POK-940', 179074805),
   ('2022-2-20', '487282', 'HPO-928', 5736544),
   ('2021-9-30', '289815', 'JSS-322', 6135228),
   ('2022-4-21', '628119', 'XPR-778', 5281025),
   ('2022-12-9', '372494', 'NCU-998', 2650512),
   ('2022-4-11', '729445', 'WZC-768', 9557900),
   ('2021-12-21', '277676', 'OEB-659', 4365803),
   ('2021-1-28', '926046', 'PME-630', 2878333),
   ('2021-3-16', '572214', 'NXC-494', 8595848),
   ('2021-7-4', '249040', 'ZHA-318', 6857503),
   ('2021-6-24', '757120', 'YNP-655', 65595),
   ('2022-4-1', '909264', 'TYF-616', 4486491)
;

INSERT INTO NEO.user_info (user_id, user_name, user_type)
VALUES
   ('630896', 'Mas Samsu', 'Retail'),
   ('540885', 'Endy Alam Sutera', 'Retail'),
   ('838693', 'Mas Yono', 'Retail'),
   ('860614', 'Fina Drift', 'Retail'),
   ('861388', 'Pempek PNS', 'Merchant'),
   ('332208', 'Resto Biasa Saja', 'Merchant'),
   ('378317', 'Hadir Fried Chicken', 'Merchant'),
   ('840679', 'PT Berapa Berapa', 'Corporate'),
   ('982223', 'PT Jengkol Abadi Jaya', 'Corporate'),
   ('680168', 'Tama Moving Company', 'Corporate')
;
```

QUERY
VIEW TABLE TRANSACTION_DETAIL

```
SELECT * FROM NEO.transaction_detail;
```

SCREENSHOT
VIEW TABLE TRANSACTION_DETAIL



	transaction_date	user_id	transaction_id	transaction_amount
1	2022-09-26	630896	LRM-123	8,409,950
2	2021-09-02	540885	PAG-269	5,789,470
3	2021-06-14	838693	CMA-888	8,701,780
4	2022-08-05	860614	GYX-702	4,875,470
5	2022-11-14	861388	DXQ-163	2,555,680
6	2022-04-01	332208	BDB-345	4,781,370
7	2021-08-01	378317	WND-613	9,484,200
8	2022-03-09	840679	ZDC-322	375,903,008
9	2021-07-06	982223	ZNQ-598	231,420,000
10	2022-03-10	680168	POK-940	179,075,008
11	2022-02-20	487282	HPO-928	5,736,540
12	2021-09-30	289815	JSS-322	6,135,230
13	2022-04-21	628119	XPR-778	5,281,020
14	2022-12-09	372494	NCU-998	2,650,510
15	2022-04-11	729445	WZC-768	9,557,900
16	2021-12-21	277676	OEB-659	4,365,800
17	2021-01-28	926046	PME-630	2,878,330
18	2021-03-16	572214	NXC-494	8,595,850
19	2021-07-04	249040	ZHA-318	6,857,500
20	2021-06-24	757120	YNP-655	65,595
21	2022-04-01	909264	TYF-616	4,486,490

QUERY
VIEW TABLE USER_INFO

```
SELECT * FROM NEO.user_info;
```

SCREENSHOT
VIEW TABLE USER_INFO

user_info 1

SELECT * FROM NEO.user_info | Enter a SQL expression to filter results

Grid | Text

	user_id	user_name	user_type
1	630896	Mas Samsu	Retail
2	540885	Endy Alam Sutera	Retail
3	838693	Mas Yono	Retail
4	860614	Fina Drift	Retail
5	861388	Pempek PNS	Merchant
6	332208	Resto Biasa Saja	Merchant
7	378317	Hadir Fried Chicken	Merchant
8	840679	PT Berapa Berapa	Corporate
9	982223	PT Jengkol Abadi Jaya	Corporate
10	680168	Tama Moving Company	Corporate

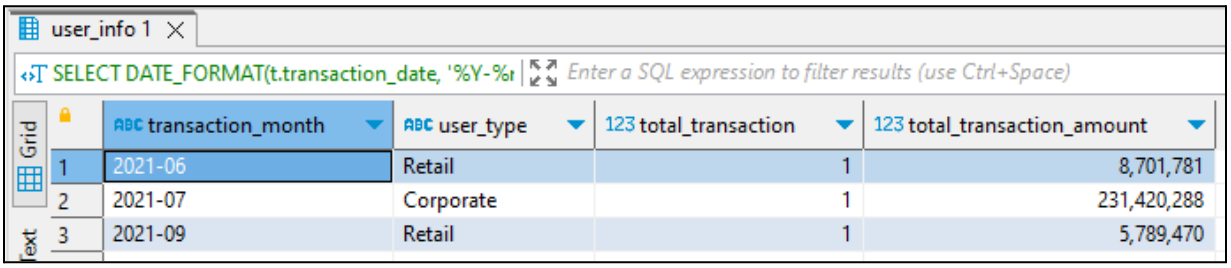
TEST A

INSTRUCTION
Write SQL query to show the total_transaction and total_transaction_amount per month per user_type from Jun-21 to Dec-21 from 'Retail' and 'Corporate' only

QUERY

```
SELECT
    DATE_FORMAT(t.transaction_date, '%Y-%m') AS transaction_month,
    u.user_type,
    COUNT(t.transaction_id) AS total_transaction,
    SUM(t.transaction_amount) AS total_transaction_amount
FROM
    NEO.transaction_detail t
JOIN
    NEO.user_info u
    ON t.user_id = u.user_id
WHERE
    u.user_type IN ('Retail', 'Corporate')
    AND t.transaction_date BETWEEN '2021-06-01' AND '2021-12-31'
GROUP BY
    DATE_FORMAT(t.transaction_date, '%Y-%m'),
    u.user_type
ORDER BY
    transaction_month,
    U.user_type;
```

SCREENSHOT



	transaction_month	user_type	total_transaction	total_transaction_amount
1	2021-06	Retail	1	8,701,781
2	2021-07	Corporate	1	231,420,288
3	2021-09	Retail	1	5,789,470

EXPLANATION

1. DATE_FORMAT(t.transaction_date, '%Y-%m'): This replaces TO_CHAR() and formats the date as YYYY-MM in MySQL.
2. JOIN: A JOIN is used to link the transaction_detail and user_info tables based on user_id.
3. WHERE:
4. Filters the user_type to include only 'Retail' and 'Corporate'.
5. Limits the query to transactions between June 2021 and December 2021.
6. GROUP BY: Groups the results by transaction_month and user_type.
7. COUNT(t.transaction_id): Counts the total number of transactions for each group.
8. SUM(t.transaction_amount): Sums the total transaction amounts for each group.
9. ORDER BY: Sorts the output by transaction_month and user_type.

TEST B

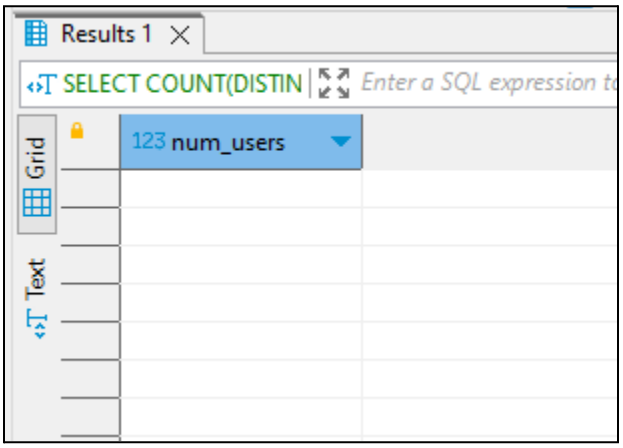
INSTRUCTION

Write SQL query to show the number of users who has total_transaction_amount > 100,000,000 in Dec-22

QUERY

```
SELECT
    COUNT(DISTINCT t.user_id) AS num_users
FROM
    NEO.transaction_detail t
JOIN
    NEO.user_info u
    ON t.user_id = u.user_id
WHERE
    t.transaction_date BETWEEN '2022-12-01' AND '2022-12-31'
GROUP BY
    t.user_id
HAVING
    SUM(t.transaction_amount) > 100000000;
```

SCREENSHOT



EXPLANATION

1. COUNT(DISTINCT t.user_id): This counts the distinct number of users who meet the condition.
2. JOIN: Joins transaction_detail with user_info based on user_id.
3. WHERE: Filters transactions that occurred only in December 2022.
4. GROUP BY t.user_id: Groups transactions by user_id to calculate the total transaction amount per user.
5. HAVING SUM(t.transaction_amount) > 100000000: Filters users whose total transaction amount in December 2022 exceeds 100,000,000.

EXPLORATORY DATA ANALYSIS (EDA) TEST

(*Using Spreadsheet*)

Imagine BNC leaders invite you to a strategy meeting. You ought to provide insights about the current situation and provide actionable product solutions for the problems. Please do the following :

TEST A

INSTRUCTION
Make a table that best demonstrates the data to someone who wants to get a quick snapshot view of BNC loan performance.
ANSWER

BNC Loan Performance Summary (Jan - Jun 2016)

Loan Status	*Values*							
	Approved		Pending		Rejected		Grand Total	
Loan Type	SUM of Total Loan Applicants	SUM of Total Loan Amount	SUM of Total Loan Applicants	SUM of Total Loan Amount	SUM of Total Loan Applicants	SUM of Total Loan Amount	SUM of Total Loan Applicants	SUM of Total Loan Amount
Loan A	3,284	1,282,988,671	306	195,465,142	1,295	555,731,440	4,886	2,034,185,252
Loan B	949	154,935,144	20	2,246,244	92	15,634,601	1,061	172,815,989
Loan C	438,977	7,411,166,490	6,844	143,768,898	205,438	3,568,232,850	651,260	11,123,168,238
Loan D	347	54,457,494	92	18,192,720	41	4,594,590	479	77,244,804
Loan E	82	1,977,066			10	139,230	92	2,116,296
Loan F	17,014	238,157,556	10	129,948	12,352	172,923,660	29,376	411,211,164
Loan G	2,856	549,966,854	245	44,902,603	388	71,376,724	3,488	666,246,181
Loan H	1,512,364	32,572,160,494	11,546	282,870,806	266,251	6,470,853,480	1,790,161	39,325,884,780
Loan I	130,723	4,818,139,544	449	16,947,076	24,276	949,418,652	155,448	5,784,505,272
Loan J	93,585	2,262,842,072	418	9,877,904	69,258	1,800,494,514	163,261	4,073,214,491
Grand Total	**2,200,181**	**49,346,791,385**	**19,931**	**714,401,341**	**579,401**	**13,609,399,740**	**2,799,512**	**63,670,592,467**

Click Here For Details

TEST B

INSTRUCTION
Make analysis, present your findings clearly and give suggestions to management for next Quarter.
ANSWER

Analysis and Recommendations

Analysis of Loan Performance (Jan - Jun 2016) :

1. Overall Performance
   - ★ Total applicants: 2,799,512
   - ★ Total loan amount: IDR 63,670,592,467
   - ★ Approved loans: 2,200,181 applicants (IDR 49,346,791,385)
   - ★ Pending loans: 19,931 applicants (IDR 714,401,341)
   - ★ Rejected loans: 579,401 applicants (IDR 13,609,399,740)

2. Loan Types Analysis
   - ★ Loan A: High total loan amount with a substantial number of applicants. The highest total in both approved and rejected categories.
   - ★ Loan C: The most significant approved amount (IDR 7,411,166,490) and the highest total amount (IDR 11,123,168,238).
   - ★ Loan H: Dominates in terms of total loan amount approved (IDR 32,572,160,494), making it a key contributor to the overall loan portfolio.
   - ★ Loan F and Loan G: Notable for their relatively high total loan amounts and number of applicants.
3. Pending Loans
   - ★ Loan H: High pending loan amount (IDR 282,870,806) which needs attention as it contributes significantly to the pending category.
4. Rejected Loans
   - ★ Loan C and Loan H: High total amount in the rejected category, indicating potential issues in loan approval processes or criteria.

Recommendations for Next Quarter:

1. Focus on Reducing Rejections
   - ★ Analyze the criteria and reasons for high rejection rates, especially for Loan C and Loan H. Consider revising eligibility criteria or improving applicant pre-screening processes.
2. Improve Conversion of Pending Loans
   - ★ Develop strategies to convert pending loans to approved. This may include faster processing times or better communication with applicants.
3. Enhance Customer Engagement
   - ★ For loans with high pending or rejection rates, implement customer engagement strategies to understand and address their concerns. This can include follow-up calls or feedback surveys.
4. Optimize Loan Processing
   - ★ Streamline the loan approval process to reduce processing time and increase efficiency. Invest in technologies that support quicker decision-making.
5. Monitor and Adjust Loan Types
   - ★ Reassess the performance of each loan type. Focus on those with high approval rates and significant loan amounts, while reviewing those with less favorable results for potential adjustments.
6. Explore New Product Offerings
   - ★ Based on performance insights, consider developing new loan products or refining existing ones to better meet customer needs and improve approval rates.

By addressing these areas, BNC can aim to improve overall loan performance, reduce the number of rejections, and enhance customer satisfaction.