

Project Overview

CREDIT CARD

- 1. The analysis examines customer behavior across credit card categories, focusing on utilization ratios and transaction volumes.
- 2. It identifies customers with high utilization ratios and ranks the top customers by total transaction amounts each quarter.
- 3. The analysis tracks the contribution of annual fees by card categories and monitors transaction trends over time.

CREDIT_CARD Table:

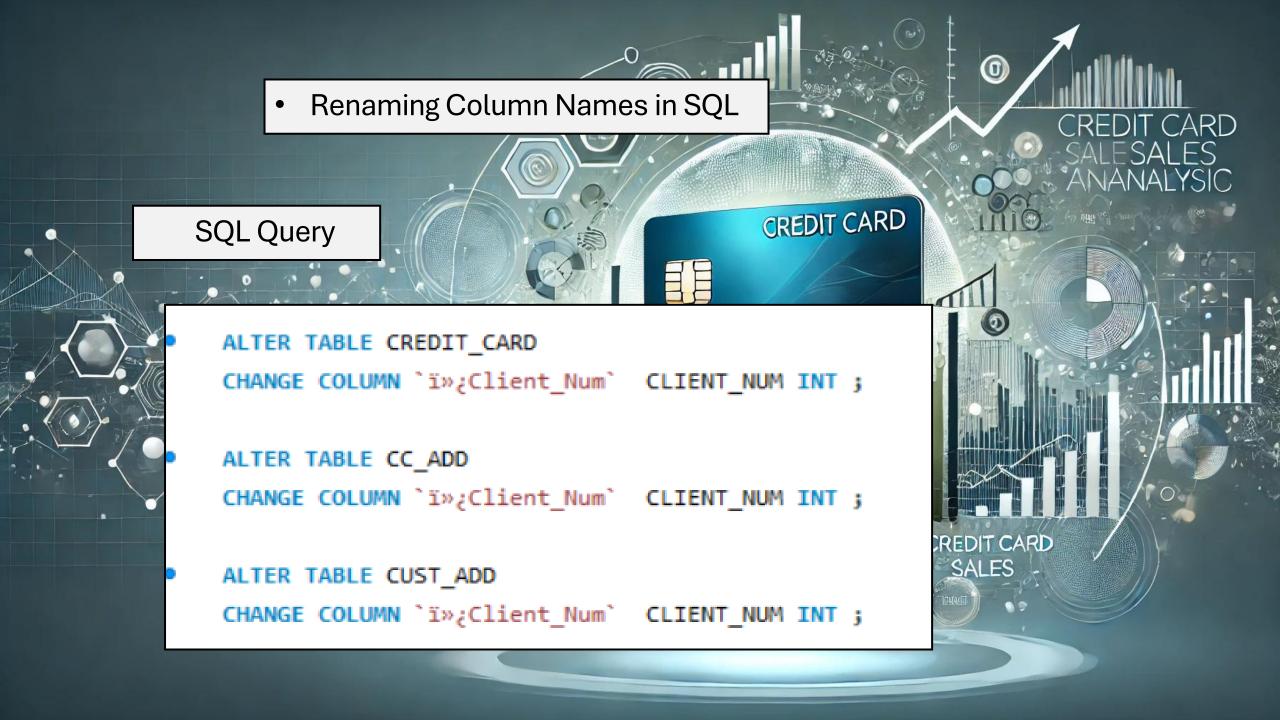
- CLIENT_NUM: Unique identifier for each customer.
- Card_Category: Type of credit card.
- Annual_Fees: Yearly fee charged for the card.
- Activation_30_Days: Whether the card was activated within 30 days of issuance.
- Customer_Acq_Cost: Cost incurred for acquiring the customer.
- Week_Start_Date: Start date of the week for the data entry.
- Week_Num: Week number in the year.
- Qtr: The fiscal quarter in which the data was recorded.
- **current_year**: The current year for the record.
- Credit_Limit: Maximum amount of credit available on the card.
- Total_Revolving_Bal: Total balance carried forward month-to-month.
- Total_Trans_Amt: Total amount spent using the card in each period.
- Total_Trans_Vol: Total number of transactions made.
- Avg_Utilization_Ratio: Average percentage of credit limit used.
- **Use Chip:** Card usage type (online . Swipe , chip)
- **Exp Type**: Type of expenditure for transaction.
- Interest_Earned: Total interest earned by the credit card issuer.
- **Delinquent_Acc**: Number of delinquent (due or pending payment) accounts associated with the client.

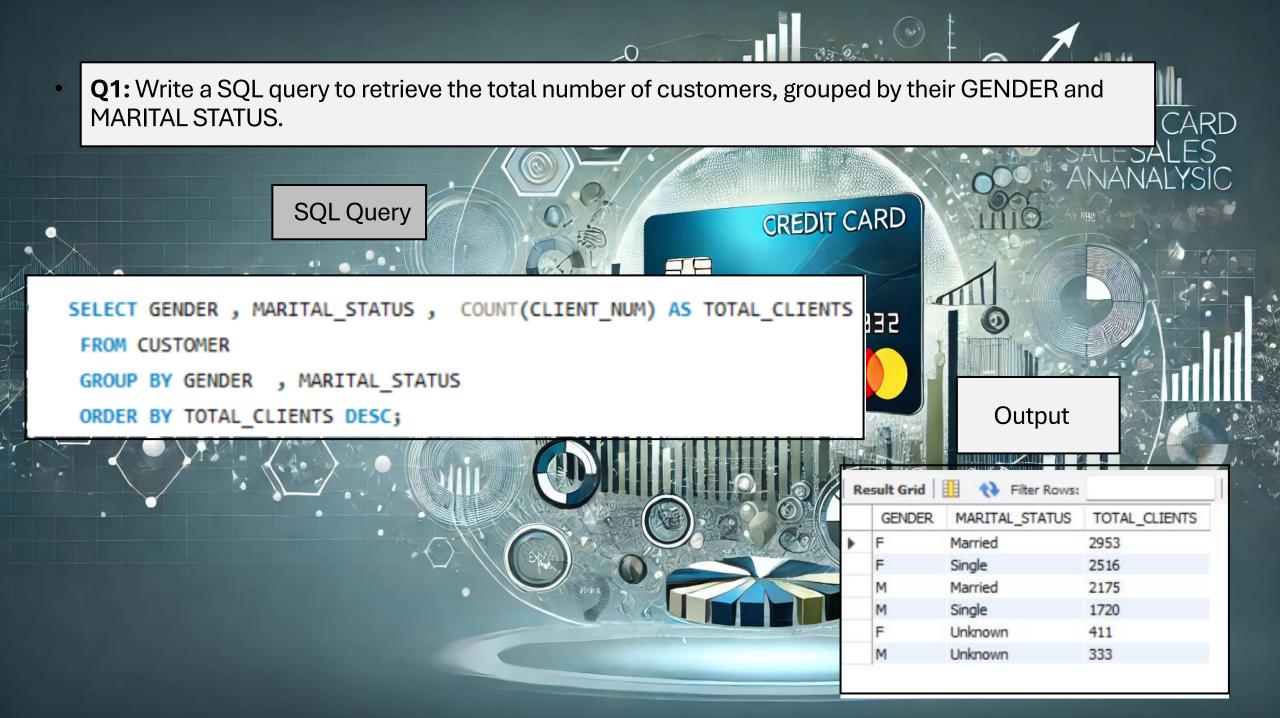


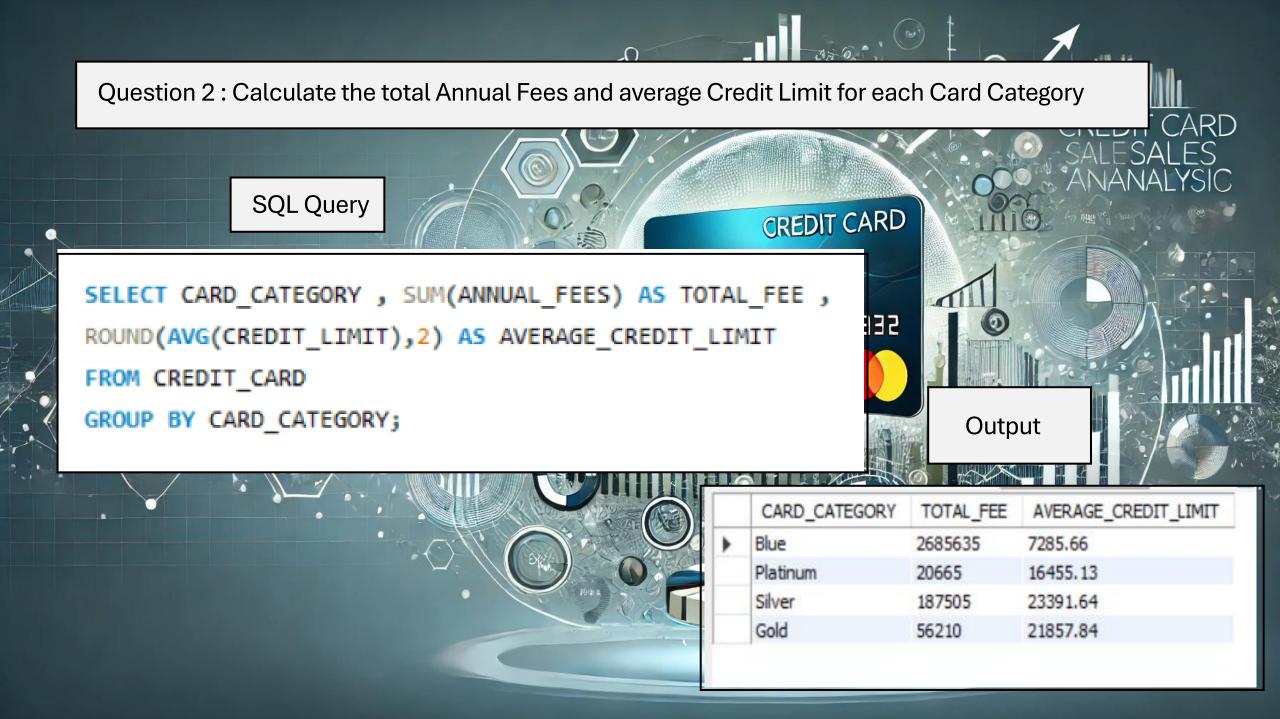
CUSTOMER Table:

- **CLIENT_NUM**: Unique identifier for each customer.
- **CUSTOMER**: Name or identifier of the customer.
- **GENDER**: Gender of the customer.
- **DEPENDENT**: Number of dependents the customer has.
- EDUCATION: Education level of the customer.
- MARITAL_STATUS: Marital status of the customer.
- STATE_CD: The state code where the customer resides.
- ZIPCODE: Postal code of the customer's address.
- CAR_OWNER: Whether the customer owns a car.
- HOUSE_OWNER: Whether the customer owns a house.
- PERSONAL_LOAN: Whether the customer has a personal loan.
- CONTACT: Contact details of the customer.
- CUSTOMER_JOB: Customer's job or occupation.
- **INCOME**: Annual income of the customer.
- **CUSTOMER_SATISFACTION_SCORE**: Score representing the customer's satisfaction level.

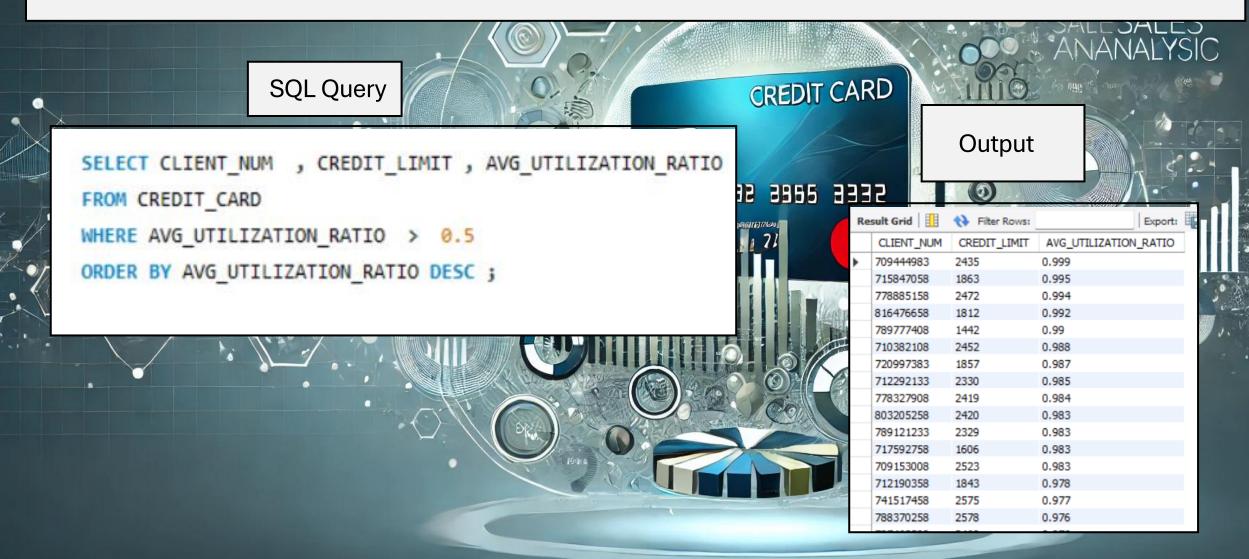


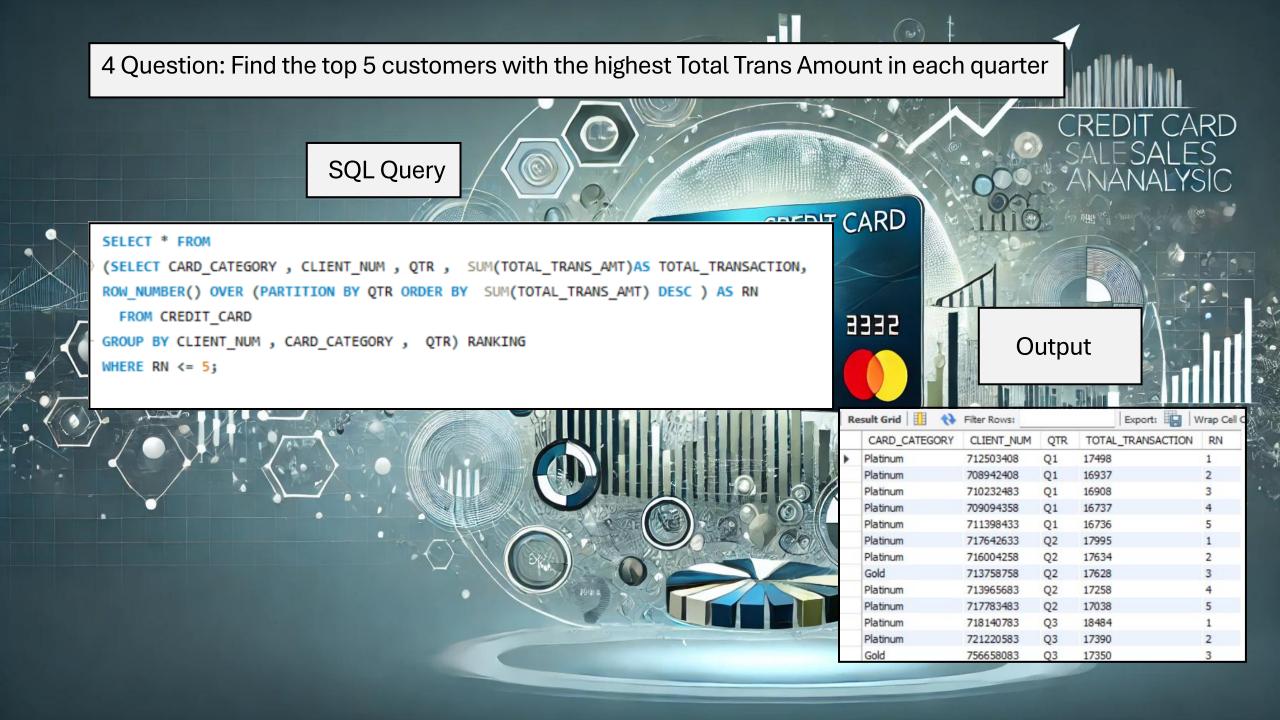






Question 3: Find customers with an Avg Utilization Ratio greater than 0.5 and list their CLIENT NUM and Credit Limit.





QUESTION 5: Identify customers whose CUSTOMER_SATISFACTION_SCORE is below 3 and whose income is below the average income of all customers



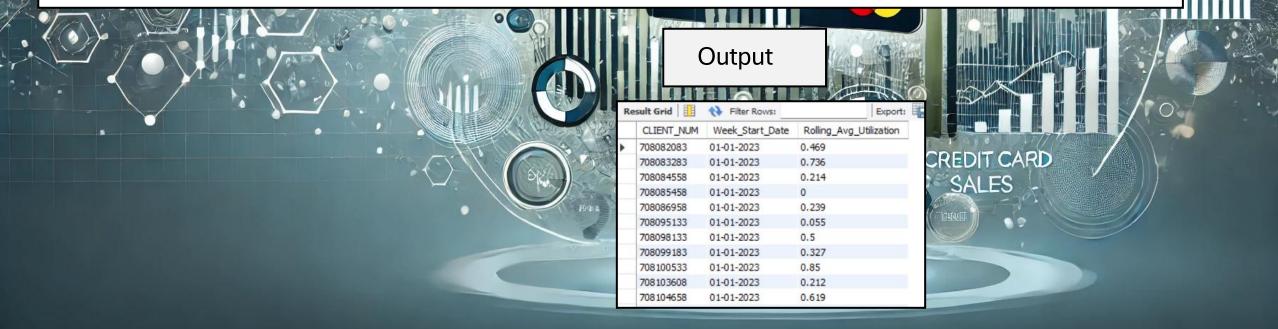
select CLIENT_NUM from customer
WHERE CUSTOMER_SATISFACTION_SCORE < 3 AND INCOME < (SELECT AVG(INCOME) FROM CUSTOMER);</pre>



QUESTION 6 :Calculate the rolling average of Avg Utilization Ratio over the past 3 weeks for each customer







Question 7: "Identify customers who have low credit card utilization (below 30%), have at least one delinquent account, and have activated their credit card in the last 30 days and find average credit limit for this customers



Question 8: Identify customers with significant transaction amounts who also have delinquent accounts.

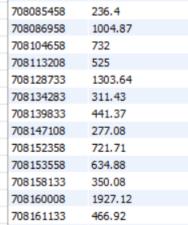


Question 9 : calculate the total interest earned by customers whose acquisition cost is above the median value

SQL Query WITH RANKING AS (SELECT CLIENT_NUM, CUSTOMER_ACQ_COST, DENSE_RANK() OVER (ORDER BY CUSTOMER_ACQ_COST DESC, CLIENT_NUM DESC) AS DESC_, DENSE_RANK() OVER (ORDER BY CUSTOMER_ACQ_COST ASC, CLIENT_NUM ASC) AS ASC_ FROM CREDIT CARD MedianCost AS (SELECT CAST(AVG(CUSTOMER_ACQ_COST) AS SIGNED) AS MEDIAN FROM RANKING WHERE DESC = ASC OR ASC + 1 = DESC OR ASC - 1 = ASC SELECT CLIENT_NUM, SUM(Interest_Earned) AS TOTAL_INTEREST FROM CREDIT CARD WHERE CUSTOMER_ACQ_COST > (SELECT MEDIAN FROM MedianCost) GROUP BY CLIENT NUM

CREDIT CARD Output





2355.3

708163758

Question 10: Identify the percentage of delinquent accounts in each quarter

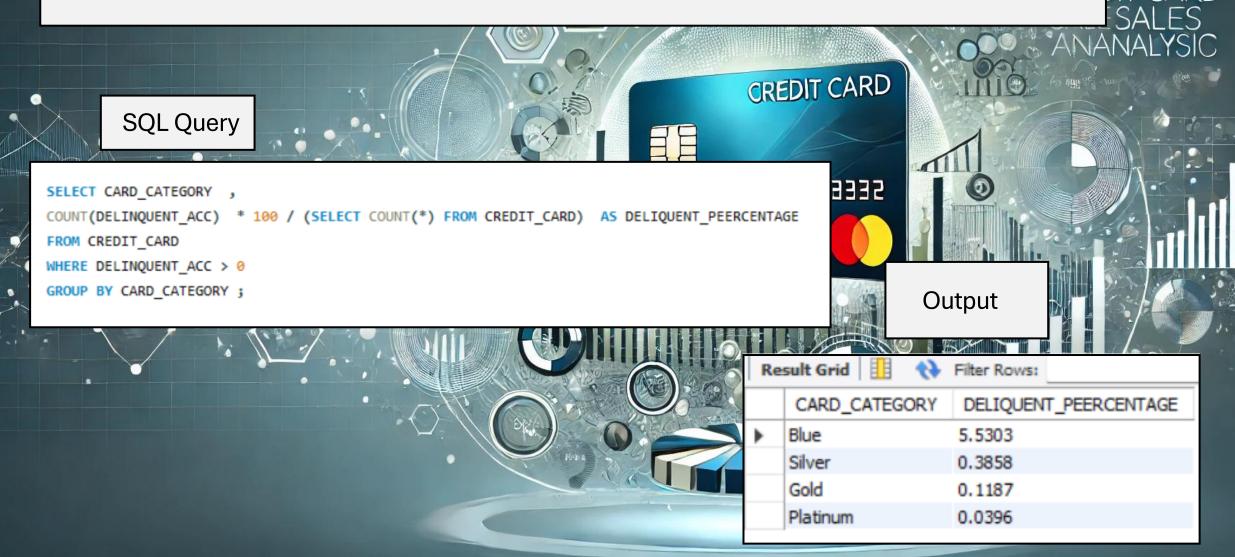
SQL Query

```
WITH Delinquent Accounts AS (
    SELECT
       Qtr,
        COUNT(Delinquent_Acc) AS Total_Delinquent_Acc
    FROM CREDIT CARD
    WHERE Delinquent_Acc > 0
    GROUP BY Qtr
Total_Accounts AS (
    SELECT
       Qtr,
       COUNT(*) AS Total Acc
    FROM CREDIT_CARD
    GROUP BY Qtr
SELECT
    D.Qtr,
    D. Total Delinquent Acc,
    ROUND((D.Total_Delinquent_Acc * 100.0 / T.Total_Acc), 2) AS Delinquent_Percentage
FROM Delinquent Accounts D
JOIN Total_Accounts T ON D.Qtr = T.Qtr;
```



0

Question 11: For each Card Category, calculate the delinquency rate (number of delinquent accounts divided by total accounts).



Question 12: Identify customers who have a high credit limit but low transaction volume, and calculate the total interest earned for this segment.

SQL Query

```
WITH High Limit Low Volume AS (
    SELECT
        CLIENT_NUM,
        CREDIT LIMIT,
        SUM(Total_Trans_Vol) AS Total_Trans_Vol,
        SUM(Interest_Earned) AS Total_Interest_Earned
    FROM CREDIT_CARD
    GROUP BY CLIENT_NUM, CREDIT_LIMIT
Overall Avg Volume AS (
    SELECT
        AVG(Total_Trans_Vol) AS Overall_Avg_Trans_Vol,
        AVG(CREDIT LIMIT) AS AVG LIMIT
    FROM CREDIT_CARD
SELECT
    H.CLIENT NUM,
    H.CREDIT LIMIT,
    H.Total_Trans_Vol,
    H.Total Interest Earned,
        WHEN H.Total_Trans_Vol < O.Overall_Avg_Trans_Vol AND H.CREDIT_LIMIT > O.AVG_LIMIT
        THEN 'Target for Increased Spending'
        ELSE 'No Action Needed'
    END AS Marketing Strategy
FROM High_Limit_Low_Volume H
CROSS JOIN Overall Avg Volume O
WHERE H.Total_Trans_Vol < O.Overall_Avg_Trans_Vol AND H.CREDIT_LIMIT > O.AVG_LIMIT ;
```



INSIGHTS

1 .Gender and Marital Status Distribution:

- A) Female clients outnumber male clients in both married (2953 females vs. 2175 males) and single (2516 females vs. 1720 males) categories.
- B) "Unknown" marital status is a relatively small category, with 411 females and 333 males, indicating a manageable group for further analysis or clarification.

2. Card Categories and Financial Metrics:

- A) Blue cards generate the highest total fee of \$2,685,635 with an average credit limit of \$7,285.66, indicating strong utilization despite a moderate credit limit.
- B) Platinum cards have the lowest total fee of \$20,665 but a significantly higher average credit limit of \$16,455.13, suggesting a more exclusive cardholder base with potentially lower transaction volumes.
- **C)Silver** and **Gold** cards fall in between with Silver having a higher average credit limit (\$23,391.64) than Gold (\$21,857.84), but lower fees compared to Blue.

3.Credit Utilization and Risk:

Clients with **high utilization ratios (above 0.9)** are at risk of overleveraging their credit, which can lead to financial strain or defaults. Monitoring these clients can help in mitigating potential credit risks.

4. Top Cardholders by Transaction Volume:

Platinum cardholders consistently dominate the top 5 spots for highest transaction amounts across all quarters, with the highest transactions peaking at **\$18,484** in Q3.

5. Customer Satisfaction and Income:

The analysis shows a significant portion of customers with **low satisfaction scores (below 3)** and **income below the average**, suggesting a potential area for improvement in customer experience and targeted marketing campaigns to improve engagement.

6 .Credit Utilization Trends:

The rolling average of **credit utilization** reveals diverse client behaviors, from consistent low utilization to periodic spikes. This indicates that some clients may be prone to increased spending during specific periods, offering opportunities for targeted interventions.

7. Activated Customers with Low Utilization:

Customers with **low utilization (<0.3)** and **delinquent accounts** have an average credit limit of **\$11,527.03**, suggesting that despite under-utilization, these clients are at risk of delinquency and need closer monitoring.

8. High-Spending Delinquent Clients:

Clients who fall in the **top 10% of transaction volumes** but also have delinquent accounts require special attention. These clients may present a higher risk due to the combination of high spending and delinquency, warranting deeper analysis of their credit behavio

Interest Earned by Clients:

Clients with higher **acquisition costs** tend to generate **moderate interest** (\$100 to \$1000), with some high-value clients earning significantly higher interest, like **\$3163.82**. This indicates a small number of customers contributing disproportionately to the overall interest earned.

CARD

Delinquency Trends by Quarter:

Q1 saw the highest delinquency rate at 7.14%, while Q2 had the lowest at 5.36%. Q3 and Q4 showed slightly higher rates at 6.19% and 5.59%, respectively, suggesting fluctuations in credit risk over the year.

Delinquency Rates by Card Category:

Blue cardholders had the highest delinquency percentage at 5.53%, while Silver, Gold, and Platinum card categories had much lower rates, indicating that high-fee cardholders might be more prone to delinquency.

Target for Increased Spending:

The marketing strategy identified **high-limit**, **low-volume clients** for targeted engagement. These clients, despite having high credit limits, are underutilizing their available credit, presenting an opportunity for interventions that encourage increased spending.

CONCLUSION

Client Demographics: Female clients outnumber male clients, with many earning below average and dissatisfied, presenting an opportunity for targeted improvement in customer experience.

Card Category Analysis: The Blue card category generates the highest fees, while the Platinum card offers higher credit limits but generates lower fees.

Credit Utilization Risk: Clients with high credit utilization are at a greater risk of financial strain, suggesting the need for closer monitoring of such accounts.

Transaction Volume: **Platinum cardholders** consistently lead in high transaction volumes, but delinquency rates are higher among **Blue card** holders.

Targeted Marketing: High-limit, low-transaction clients present an opportunity to boost spending by targeting them with personalized marketing strategies.

Focus Areas: Concentrating on credit risk management, improving customer satisfaction, and implementing targeted marketing strategies will help optimize financial performance.

ES SIC