**Credit Card Data Analysis**

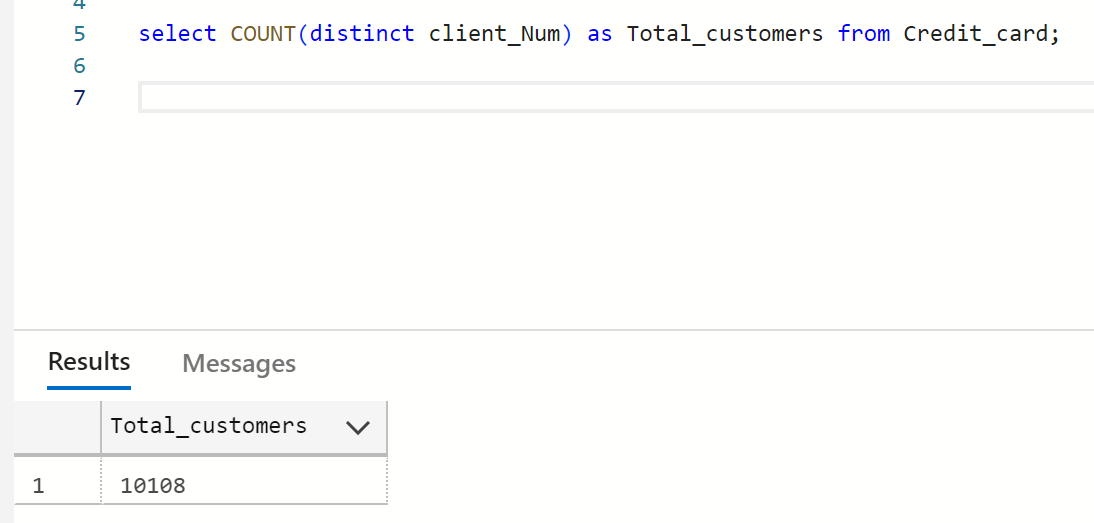
# **Project Description:**

To leverage Azure SQL Database and Azure Data Studio to perform comprehensive data analysis on credit card usage, customer demographics, and financial metrics. The objective is to gain actionable insights that can help the financial institution improve customer satisfaction, manage risks, and optimize their credit card offerings.

**Business Requirements:**

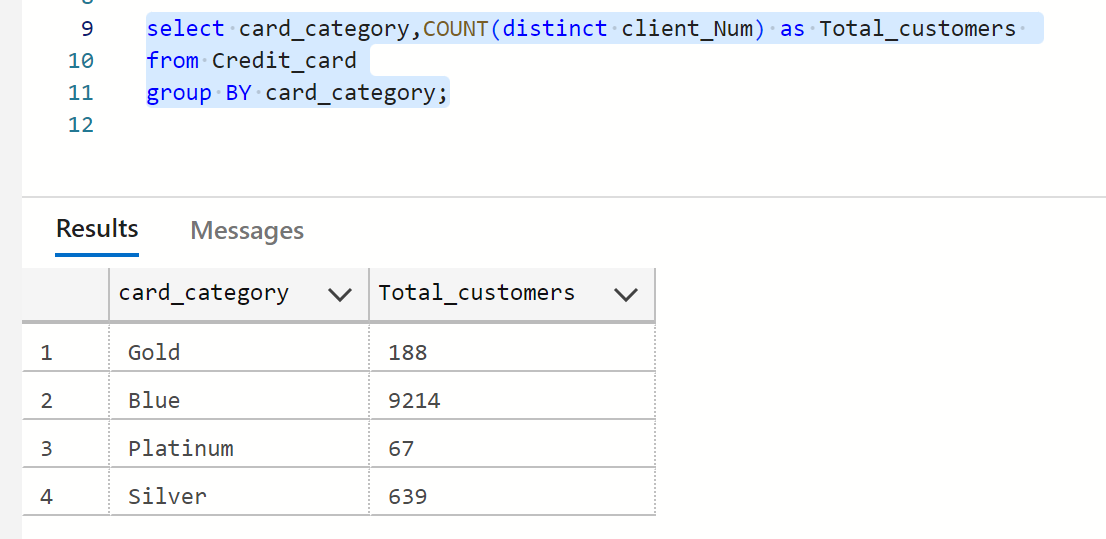
1.Count the Number of Customers

select COUNT(distinct client\_Num) as Total\_customers from Credit\_card;



2.Customers Distribution by Card Categories

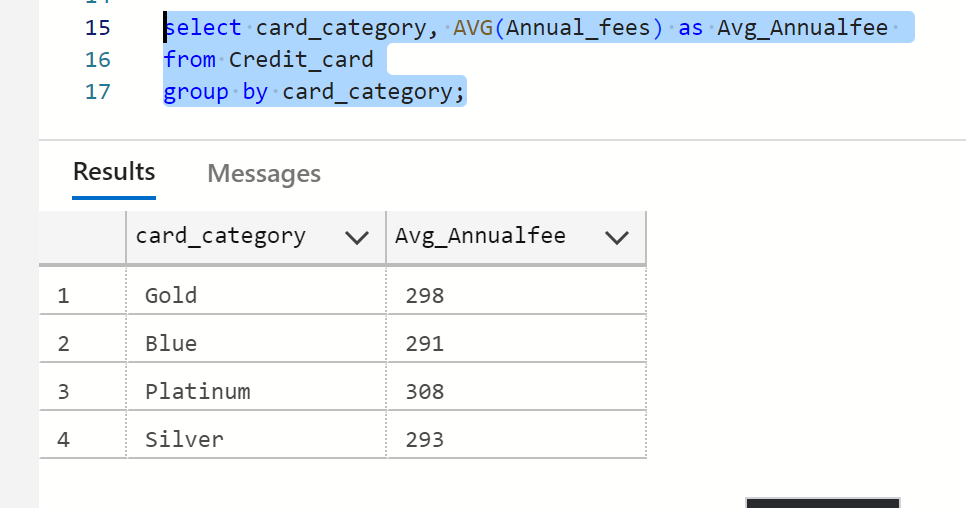
select card\_category, COUNT(distinct client\_Num) as Total\_customers from Credit\_card group BY card\_category;



3. Average Annual Fees by Card Category

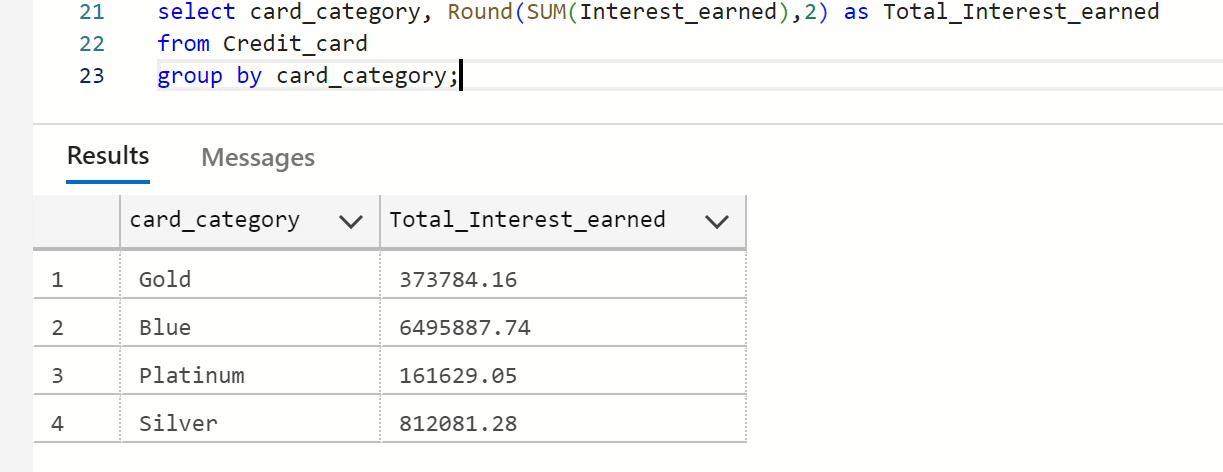
select card\_category, AVG(Annual\_fees) as Avg\_Annualfee from Credit\_card

group by card\_category;



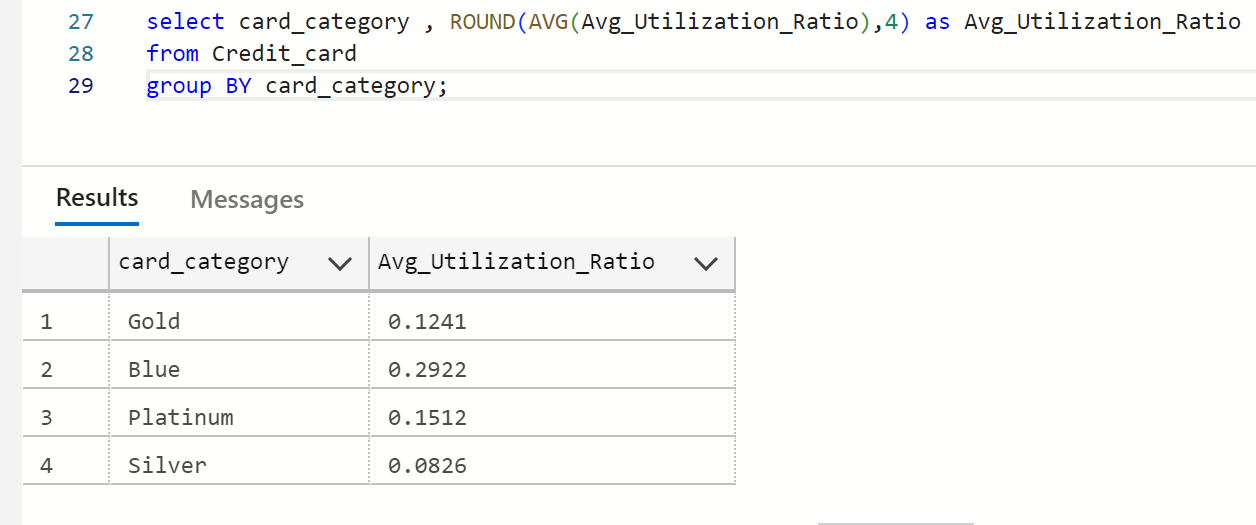
4. Total Interest Earned by Card Category

select card\_category, Round (SUM(Interest\_earned),2) as Total\_Interest\_earned from Credit\_card group by card\_category;



5. Average Utilization Ratio by Card Category

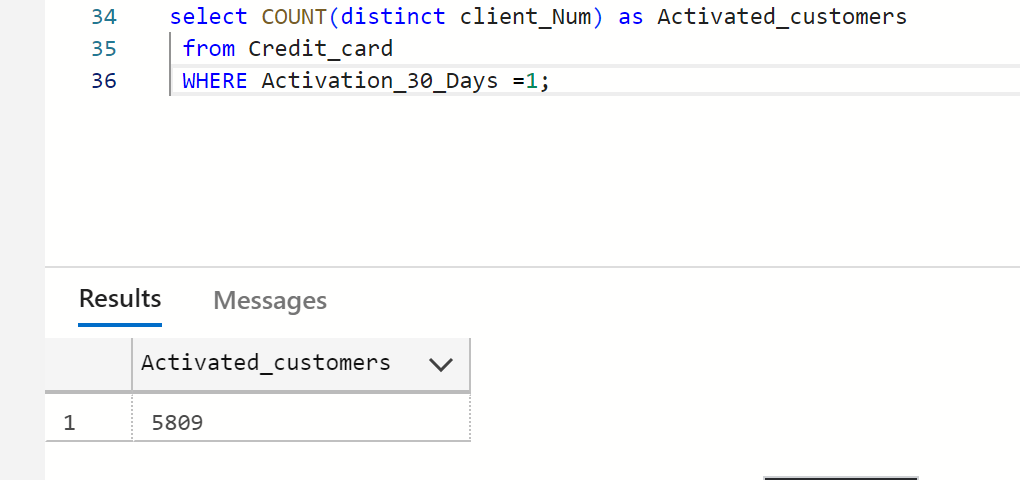
select card\_category, ROUND(AVG(Avg\_Utilization\_Ratio),4) as Avg\_Utilization\_Ratio from Credit\_card group BY card\_category;



6. Number of Clients Who Activated Within 30 Days

select COUNT(distinct client\_Num) as Activated\_customers from Credit\_card

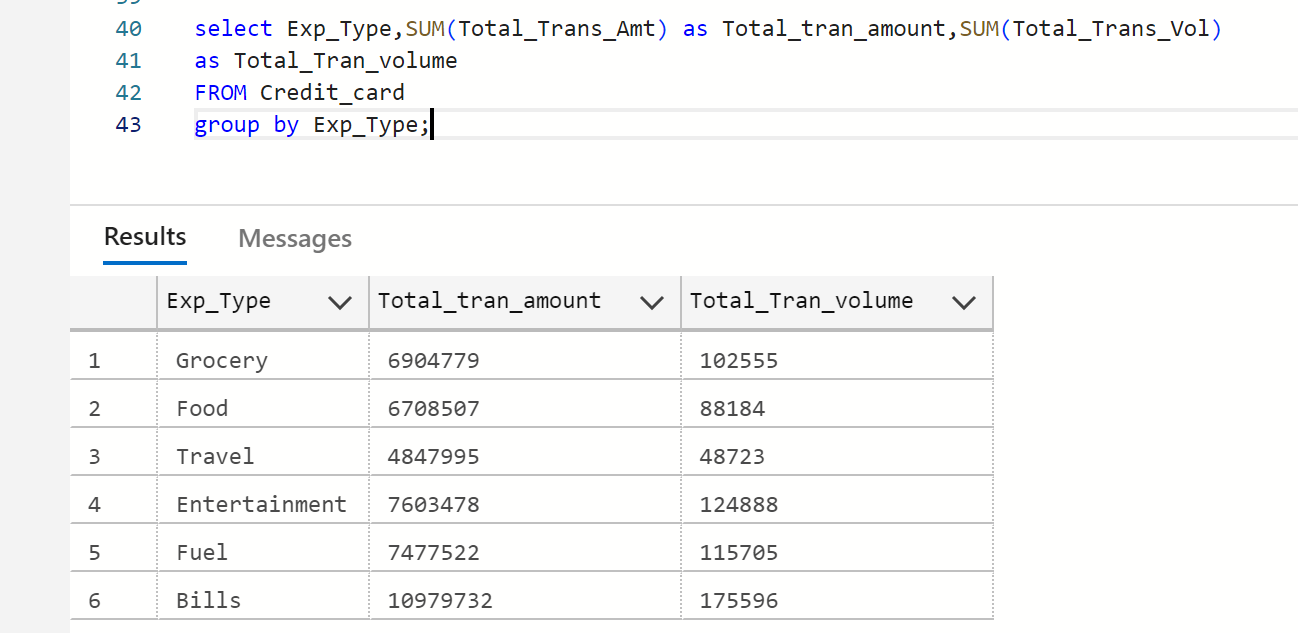
 WHERE Activation\_30\_Days =1;



7.Total Transaction Amount and Volume by Expense Type

select Exp\_Type,SUM(Total\_Trans\_Amt) as Total\_tran\_amount,SUM(Total\_Trans\_Vol)

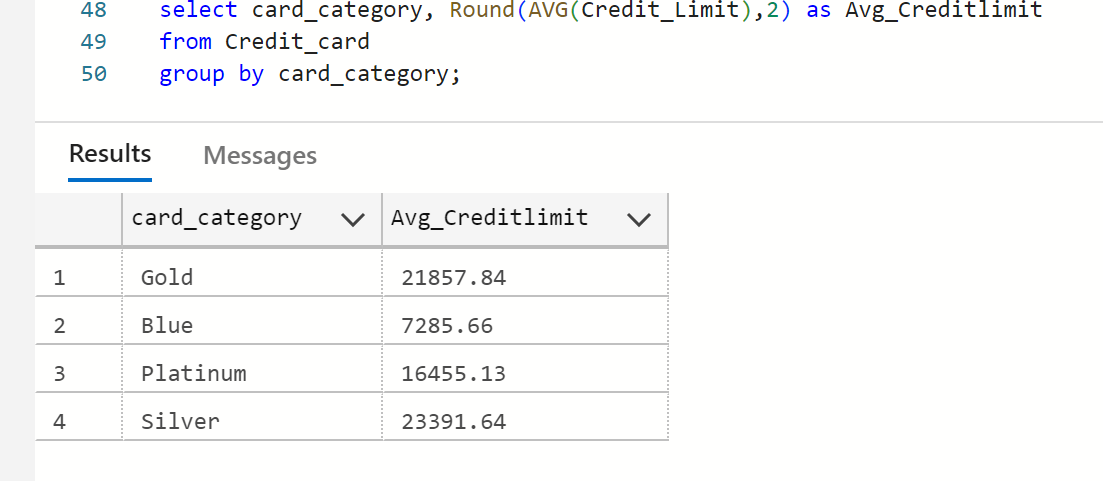
as Total\_Tran\_volume FROM Credit\_card group by Exp\_Type;



8. Average Credit Limit by Card Category

select card\_category, Round(AVG(Credit\_Limit),2) as Avg\_Creditlimit

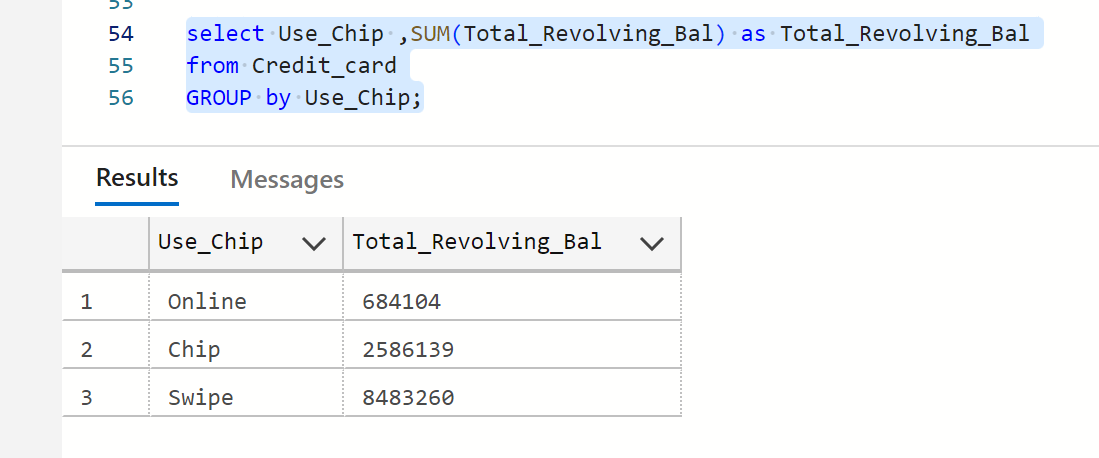
from Credit\_card group by card\_category;



9. Total Revolving Balance by Use Chip (Chip/Swipe/Online)

select Use\_Chip, SUM(Total\_Revolving\_Bal) as Total\_Revolving\_Bal

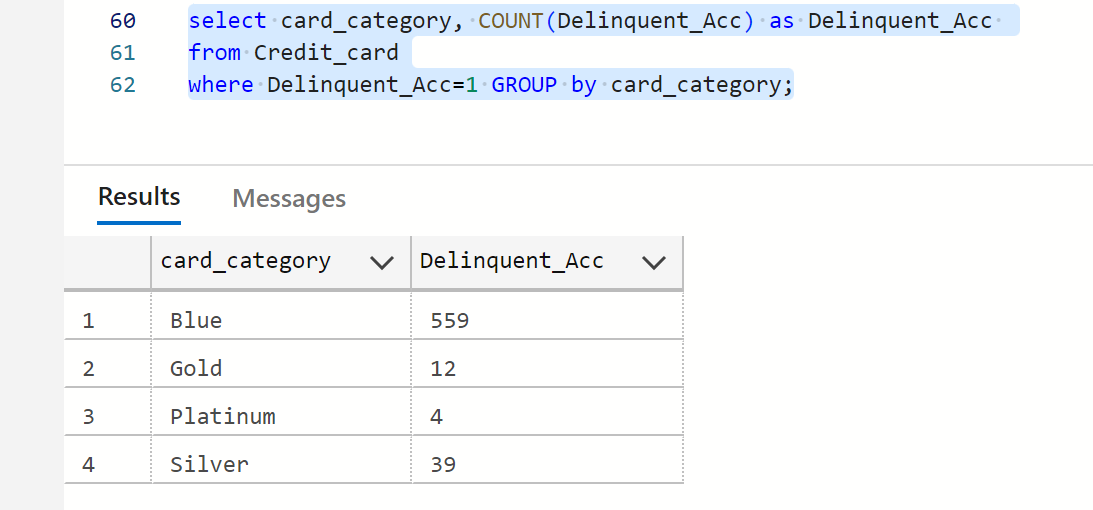
from Credit\_card GROUP by Use\_Chip;



10. Count of Delinquent Accounts by Card Category

select card\_category, COUNT(Delinquent\_Acc) as Delinquent\_Acc

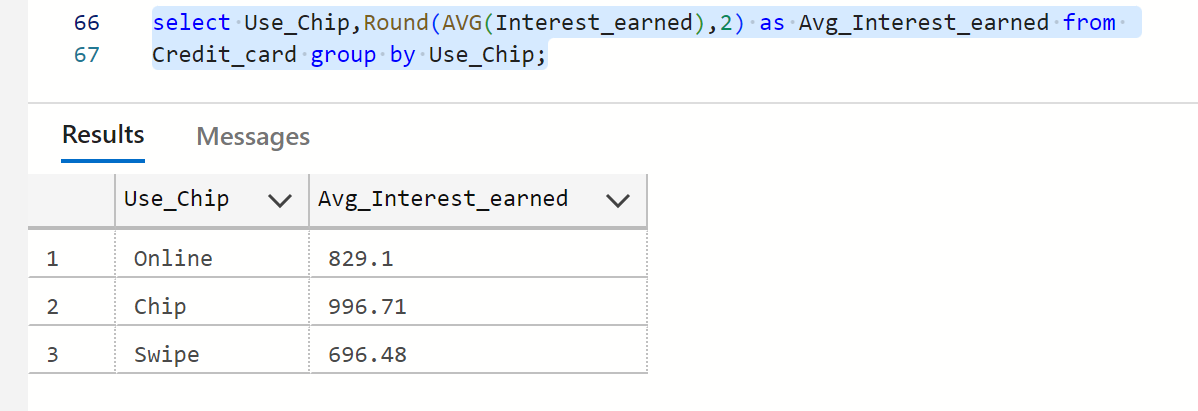
from Credit\_card where Delinquent\_Acc=1 GROUP by card\_category;



11. Average Interest Earned by Whether the Client Used Chip or Not

select Use\_Chip,Round(AVG(Interest\_earned),2) as Avg\_Interest\_earned from

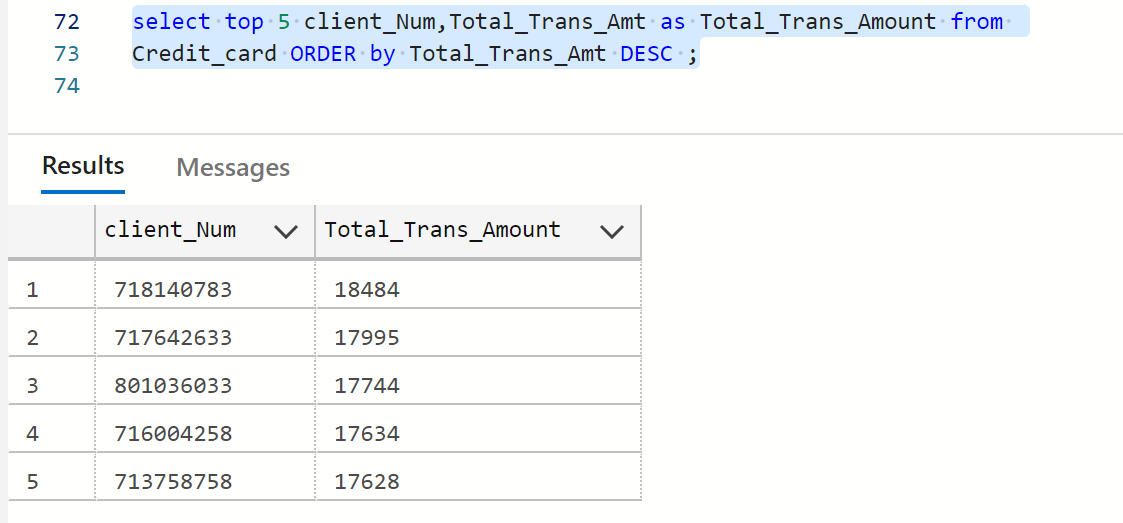
Credit\_card group by Use\_Chip;



12. Top 5 Clients by Total Transaction Amount

select top 5 client\_Num,Total\_Trans\_Amt as Total\_Trans\_Amount from

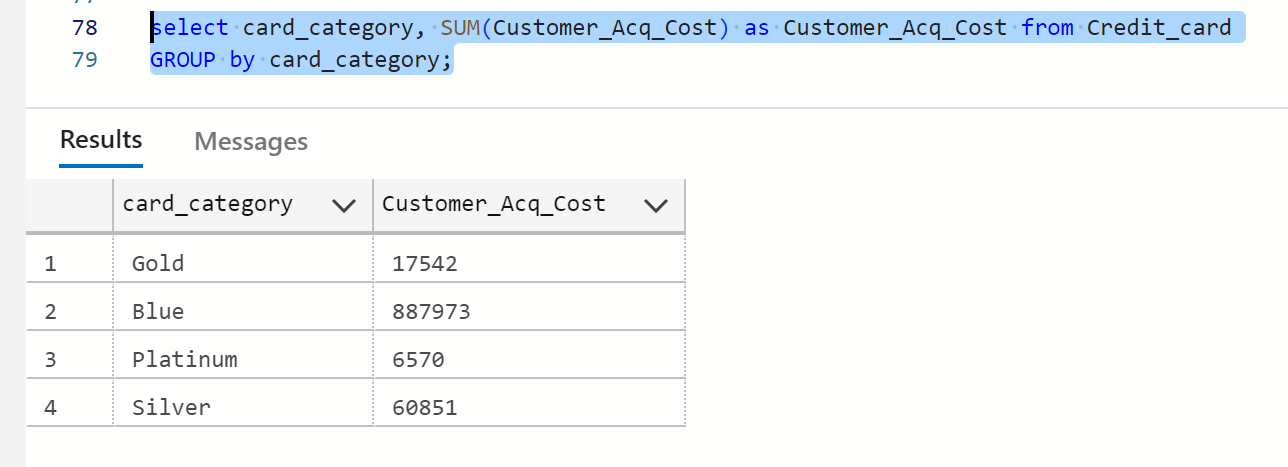
Credit\_card ORDER by Total\_Trans\_Amt DESC ;



13. Total Customer Acquisition Cost by Card Category

select card\_category, SUM(Customer\_Acq\_Cost) as Customer\_Acq\_Cost from Credit\_card

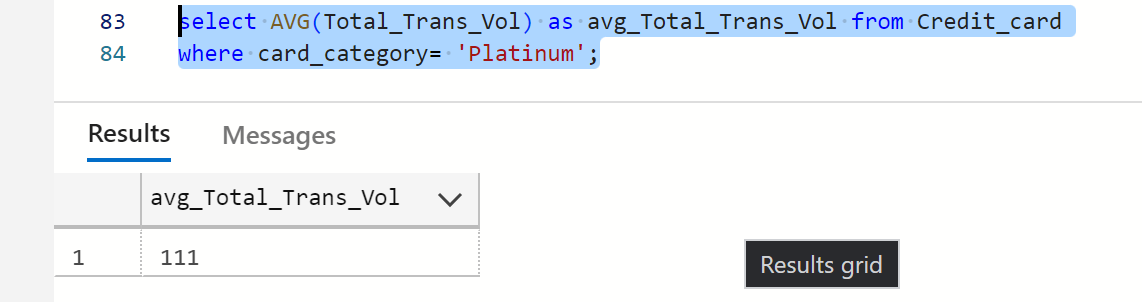
GROUP by card\_category;



14. Average Total Transaction Volume for Clients with Platinum Cards

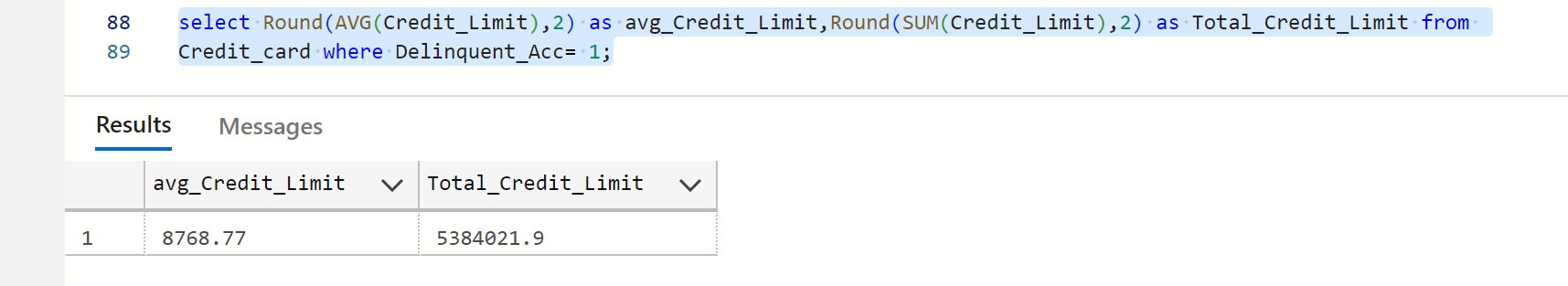
select AVG(Total\_Trans\_Vol) as avg\_Total\_Trans\_Vol from Credit\_card

where card\_category= 'Platinum';



15. Average and Total Credit Limit for Clients with a Delinquent Account

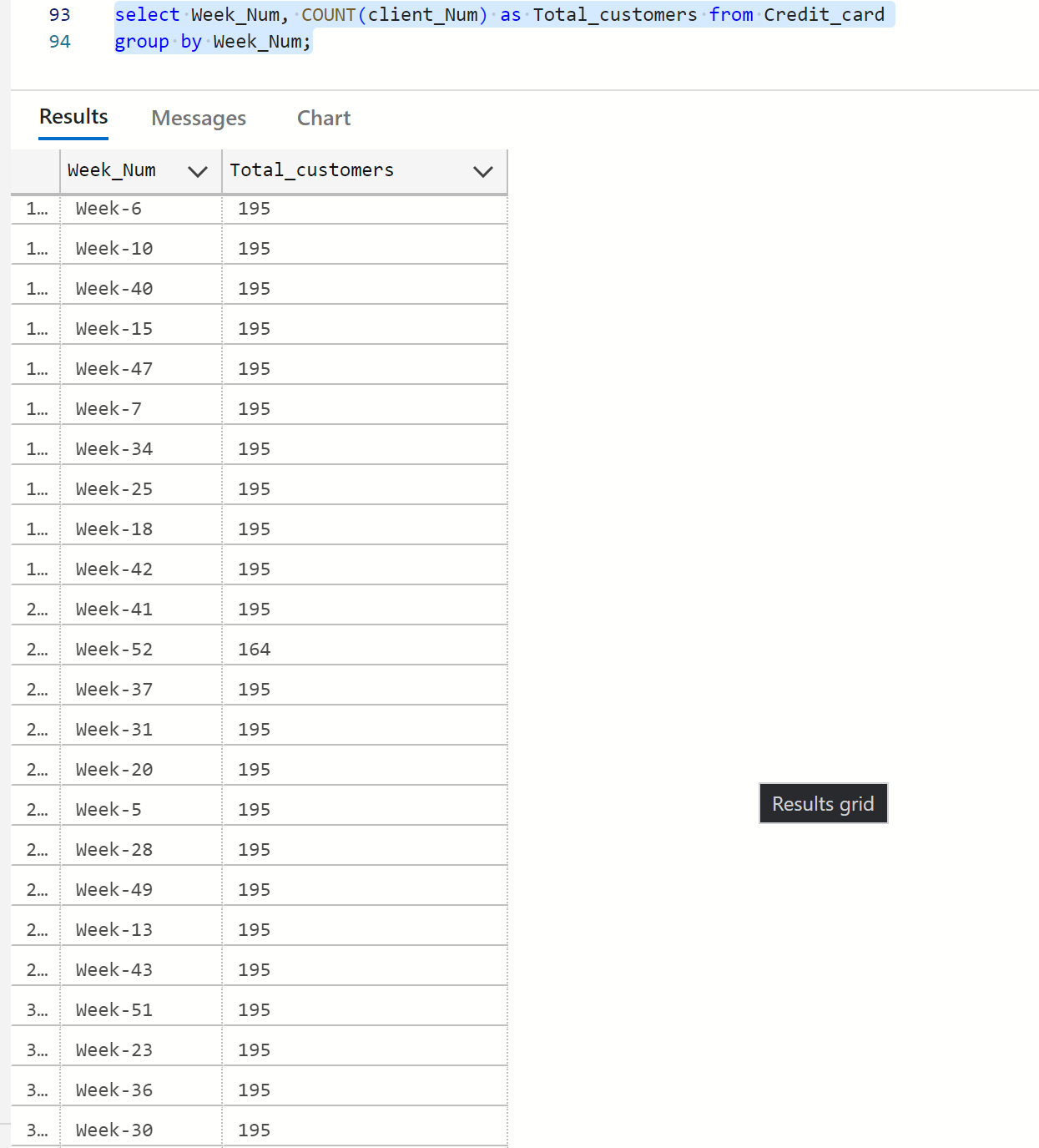
select Round(AVG(Credit\_Limit),2) as avg\_Credit\_Limit,Round(SUM(Credit\_Limit),2) as Total\_Credit\_Limit from Credit\_card where Delinquent\_Acc= 1;



16. Number of Clients by Week Number

select Week\_Num, COUNT(client\_Num) as Total\_customers from Credit\_card

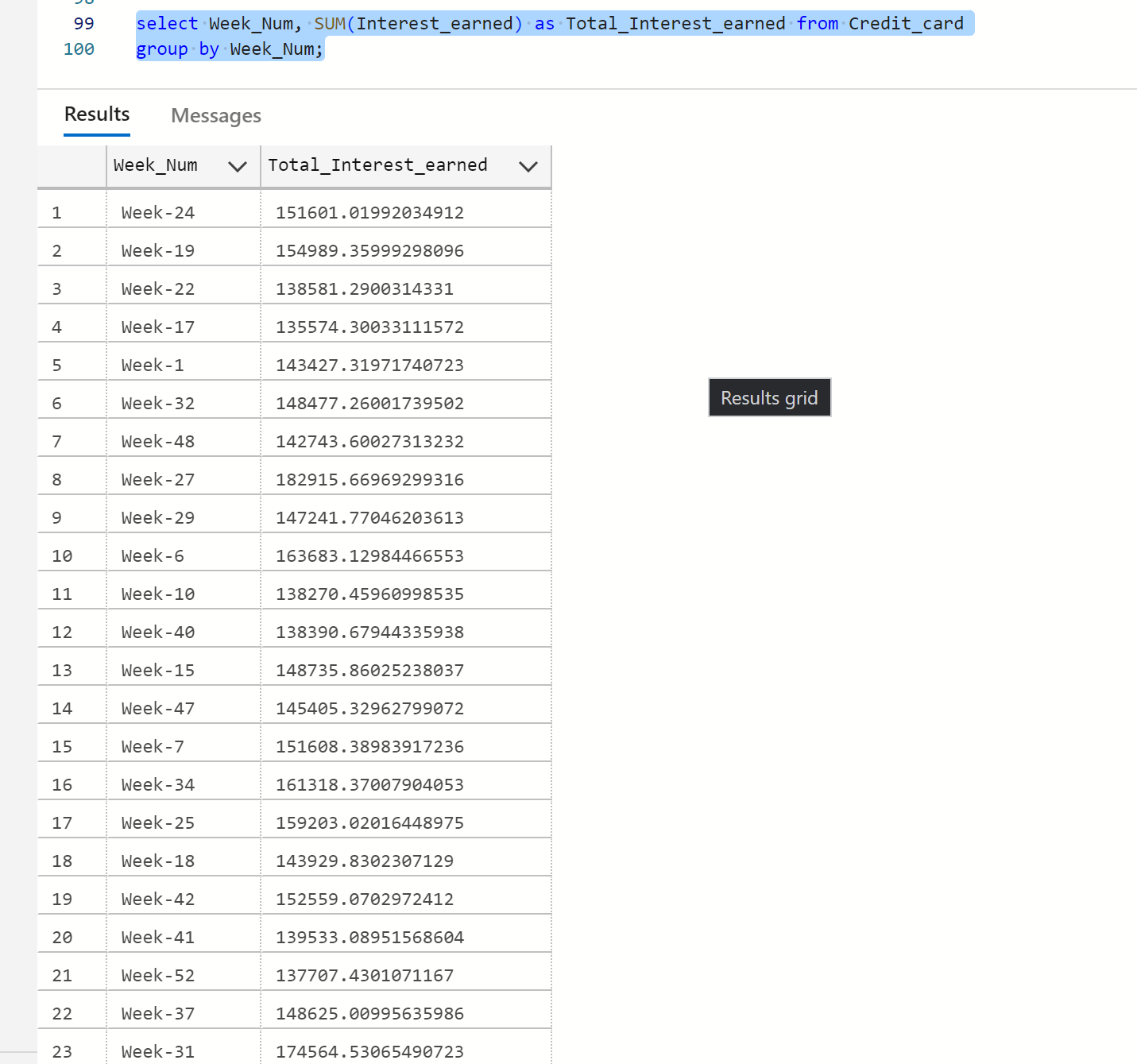
group by Week\_Num;



17. Total Interest Earned by Week Number

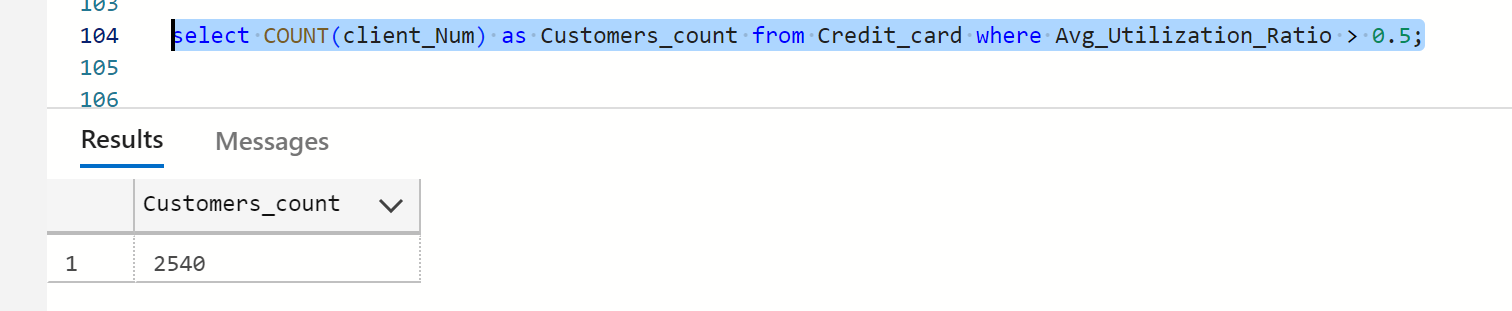
select Week\_Num, SUM(Interest\_earned) as Total\_Interest\_earned from Credit\_card

group by Week\_Num;



18. Count of Clients with High Utilization Ratio (>0.5)

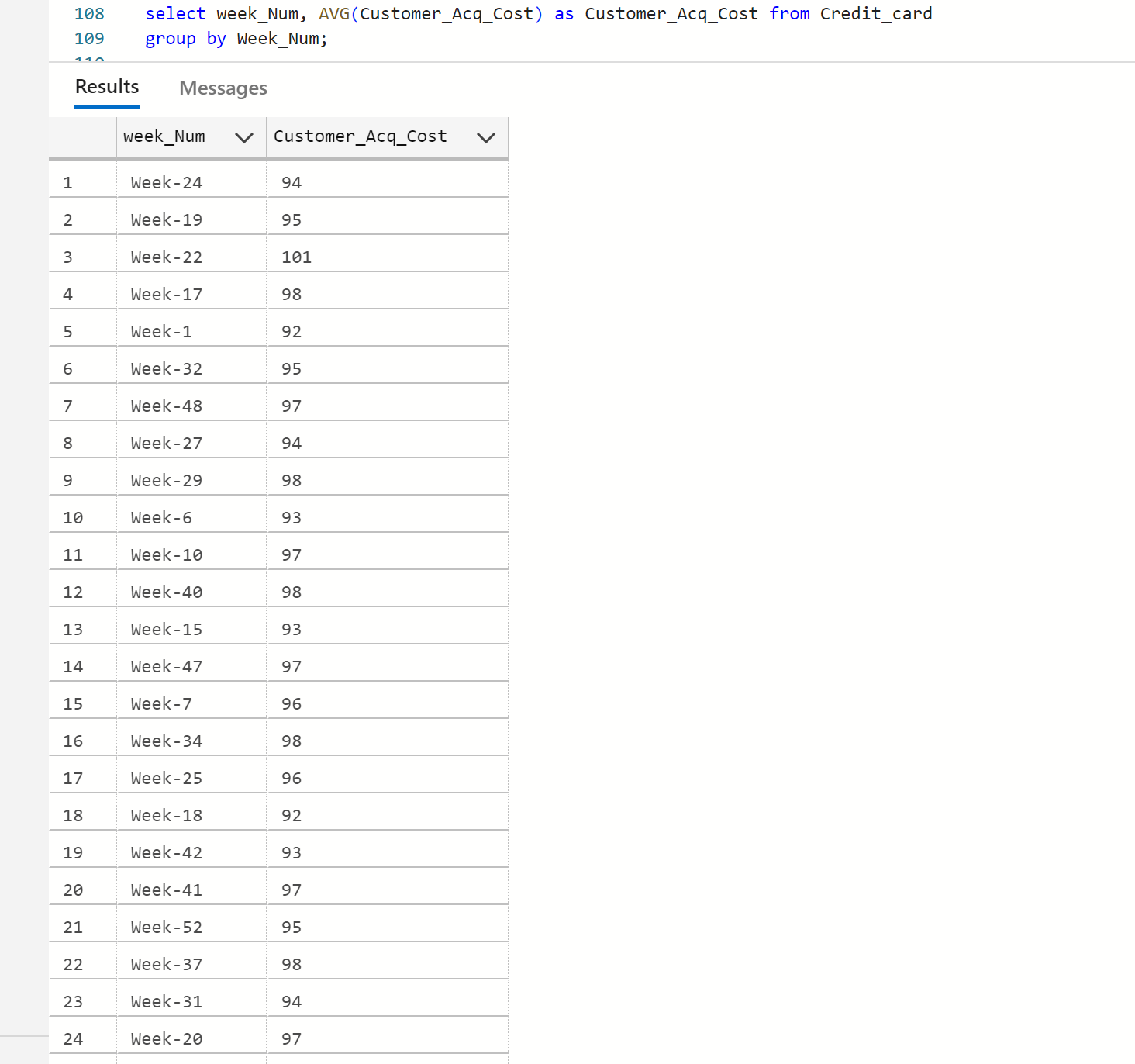
select COUNT(client\_Num) as Customers\_count from Credit\_card where Avg\_Utilization\_Ratio > 0.5;



19. Average Customer Acquisition Cost by Week

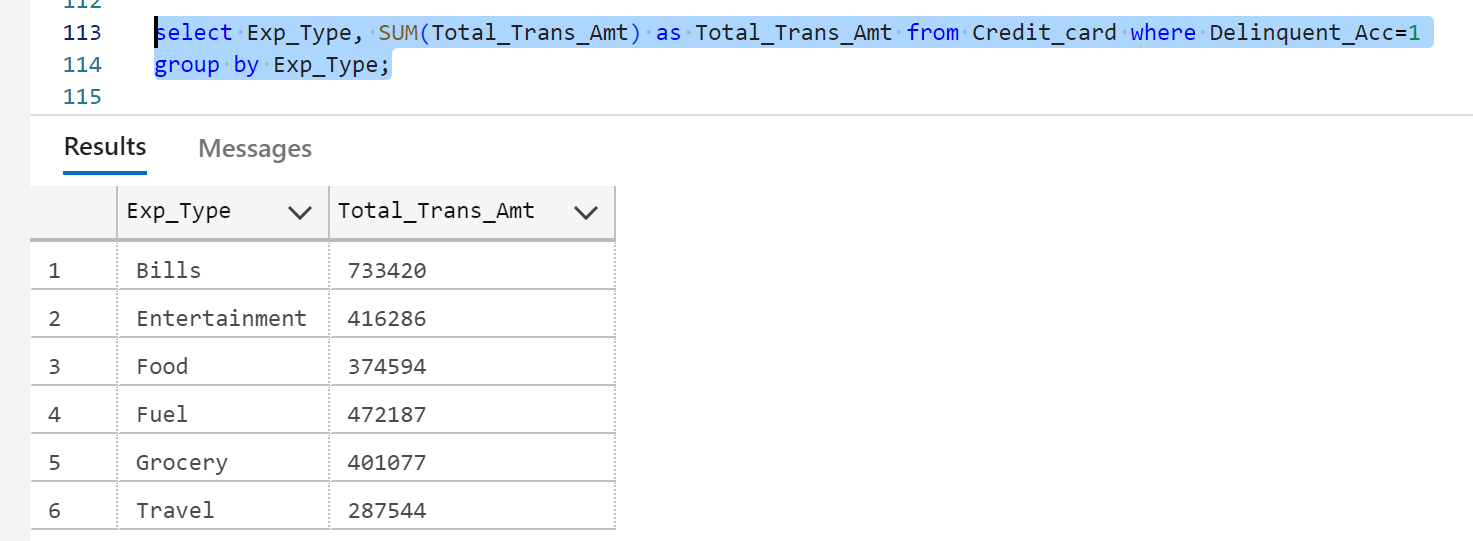
select Week\_Num, AVG(Customer\_Acq\_Cost) as Customer\_Acq\_Cost from Credit\_card

group by Week\_Num;



20. Total Transaction Amount by Expense Type for Clients with Delinquent Accounts

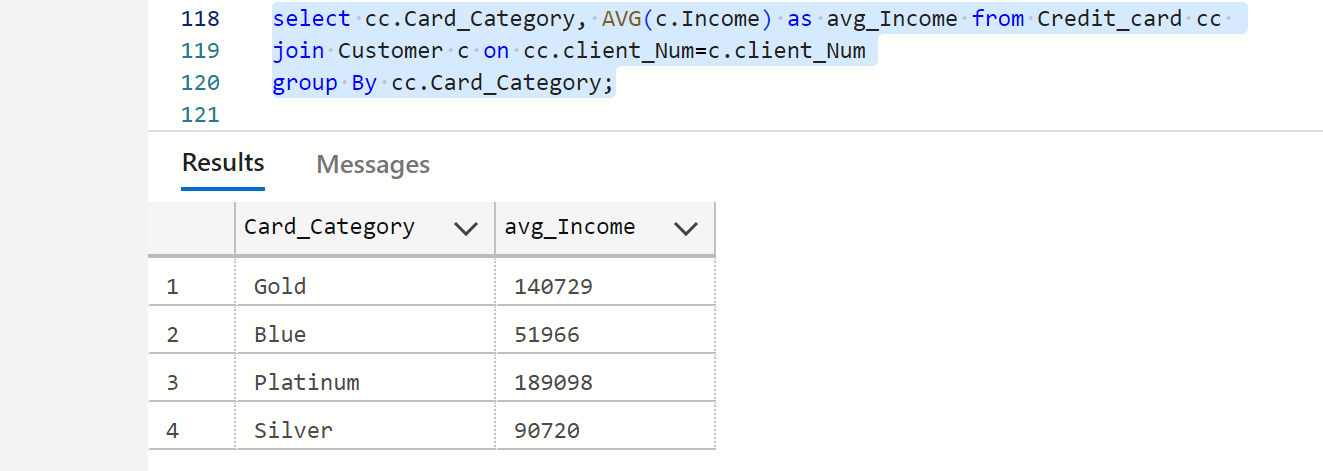
select Exp\_Type, SUM(Total\_Trans\_Amt) as Total\_Trans\_Amt from Credit\_card where Delinquent\_Acc=1 group by Exp\_Type;



21. Customer Average Income by Card Category

select cc.Card\_Category, AVG(c.Income) as avg\_Income from Credit\_card cc

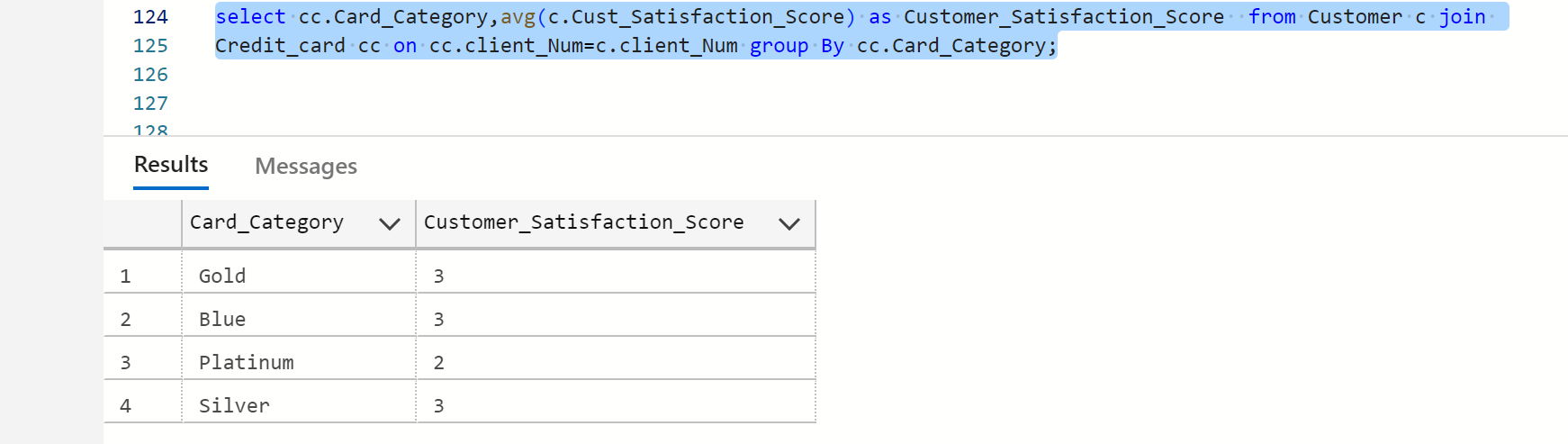
join Customer c on cc.client\_Num=c.client\_Num group By cc.Card\_Category;



22. Customer Satisfaction Score by Card Category

select cc.Card\_Category,avg(c.Cust\_Satisfaction\_Score) as Customer\_Satisfaction\_Score  from Customer c join

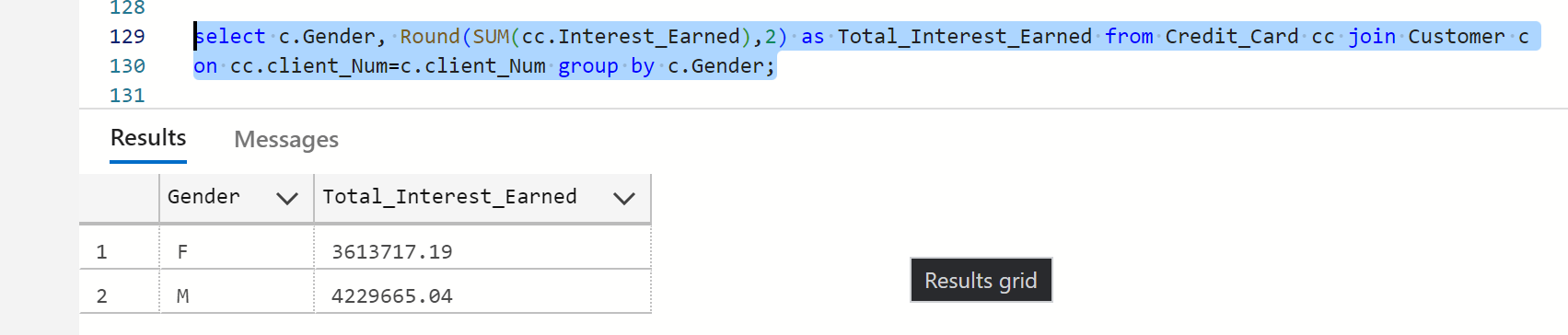
Credit\_card cc on cc.client\_Num=c.client\_Num group By cc.Card\_Category;



23. Total Interest Earned by Gender

select c.Gender, Round(SUM(cc.Interest\_Earned),2) as Total\_Interest\_Earned from Credit\_Card cc join Customer c

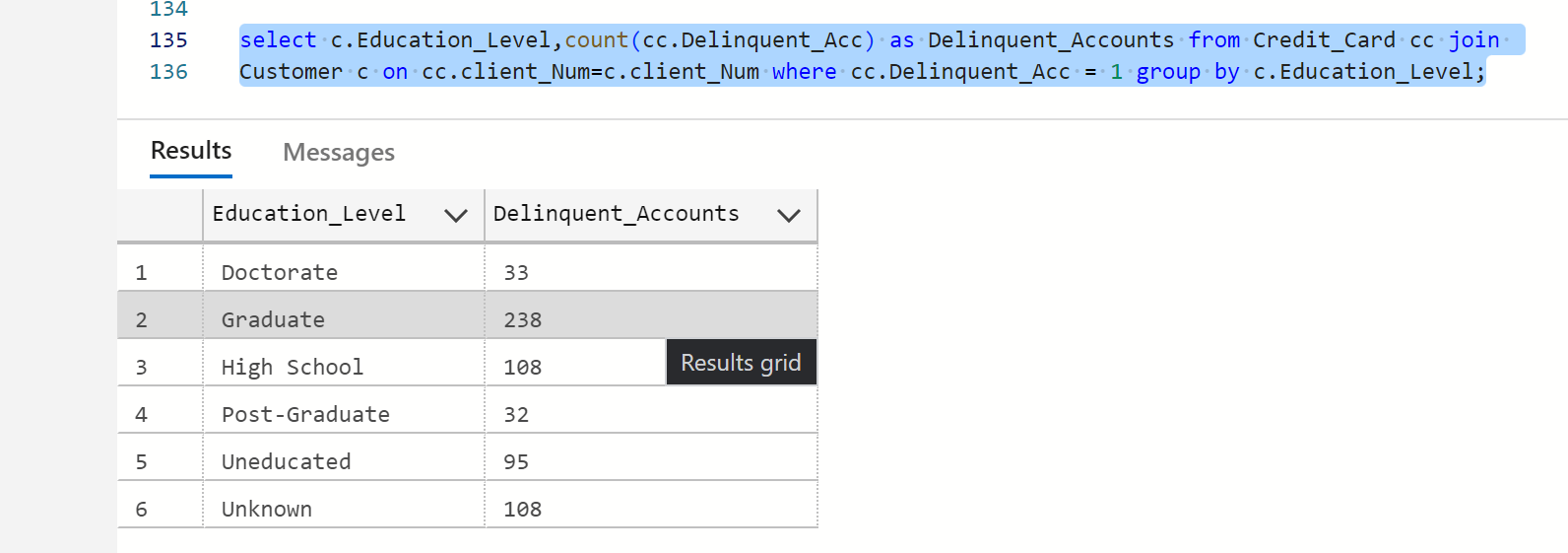
on cc.client\_Num=c.client\_Num group by c.Gender;



24. Number of Delinquent Accounts by Education Level

select c.Education\_Level,count(cc.Delinquent\_Acc) as Delinquent\_Accounts from Credit\_Card cc join

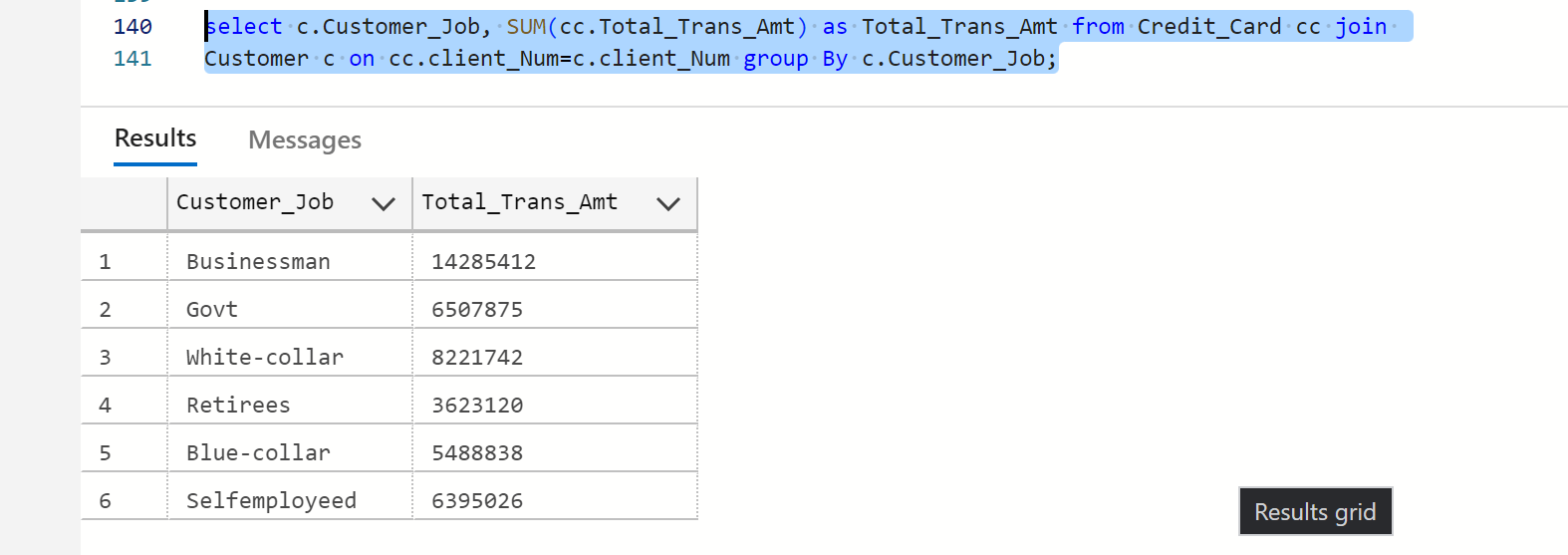
Customer c on cc.client\_Num=c.client\_Num where cc.Delinquent\_Acc = 1 group by c.Education\_Level;



25. Total Transaction Amount by Job Type

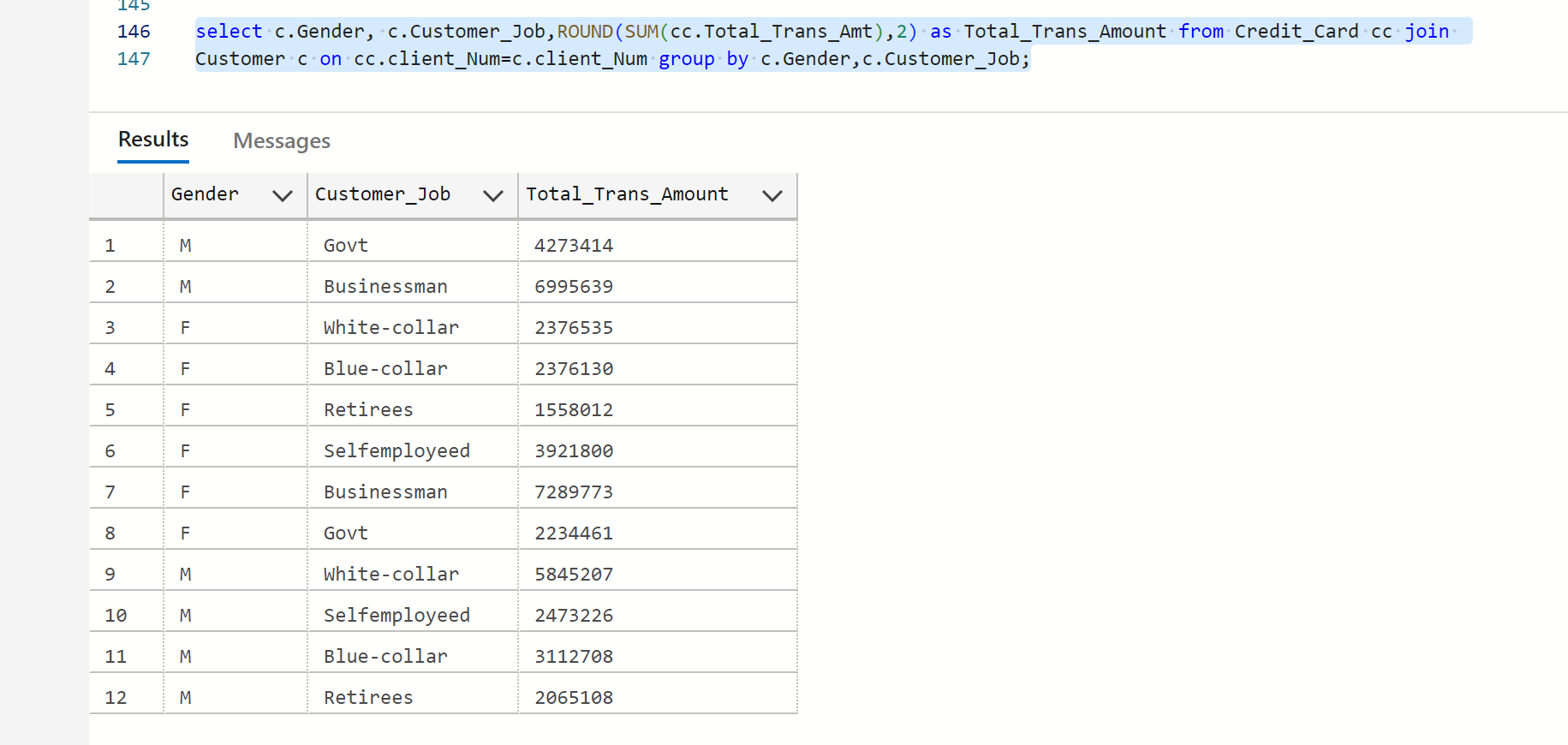
select c.Customer\_Job, SUM(cc.Total\_Trans\_Amt) as Total\_Trans\_Amt from Credit\_Card cc join

Customer c on cc.client\_Num=c.client\_Num group By c.Customer\_Job;



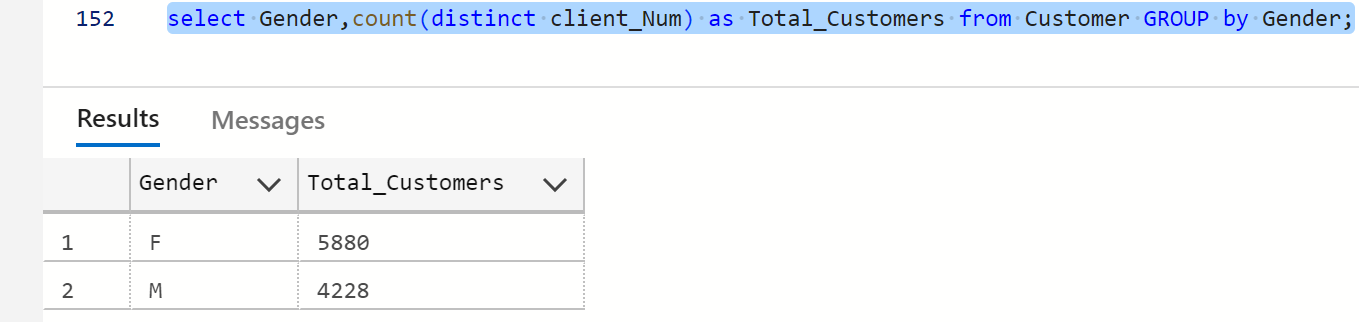
26. Total Transaction amount by Gender and Job Type

select c.Gender, c.Customer\_Job,ROUND(SUM(cc.Total\_Trans\_Amt),2) as Total\_Trans\_Amount from Credit\_Card cc join Customer c on cc.client\_Num=c.client\_Num group by c.Gender,c.Customer\_Job;



27. Customers by Gender

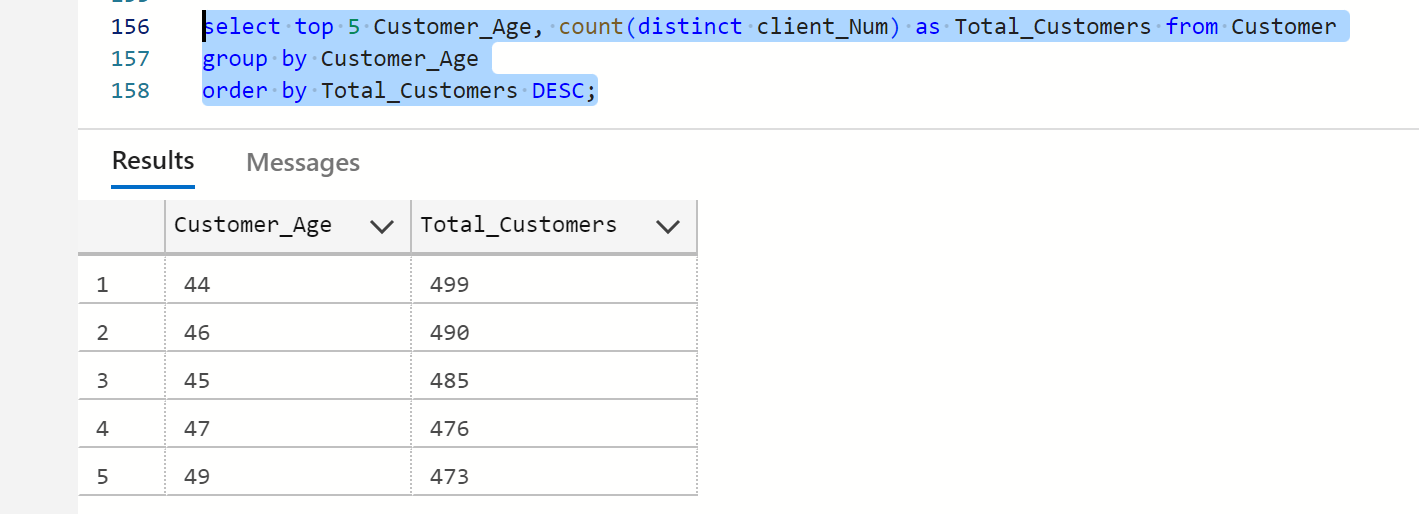
select Gender,count(distinct client\_Num) as Total\_Customers from Customer GROUP by Gender;



28. Top 5 Customers by Age

select top 5 Customer\_Age, count(distinct client\_Num) as Total\_Customers from Customer

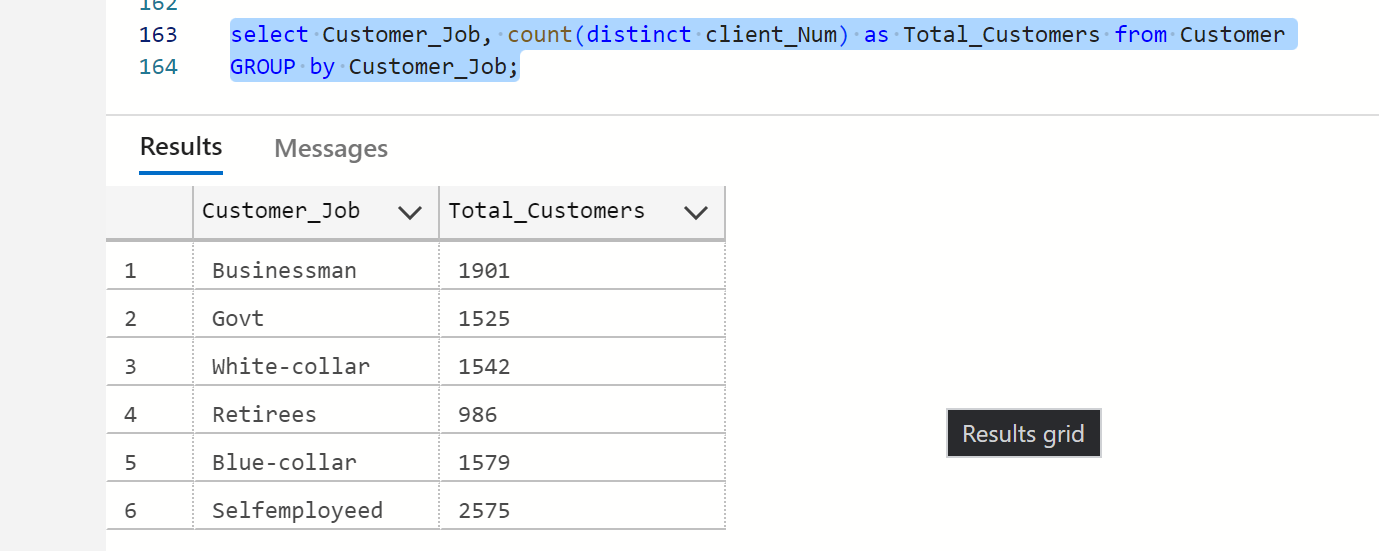
group by Customer\_Age order by Total\_Customers DESC;



29. Customers by job type

select Customer\_Job, count(distinct client\_Num) as Total\_Customers from Customer

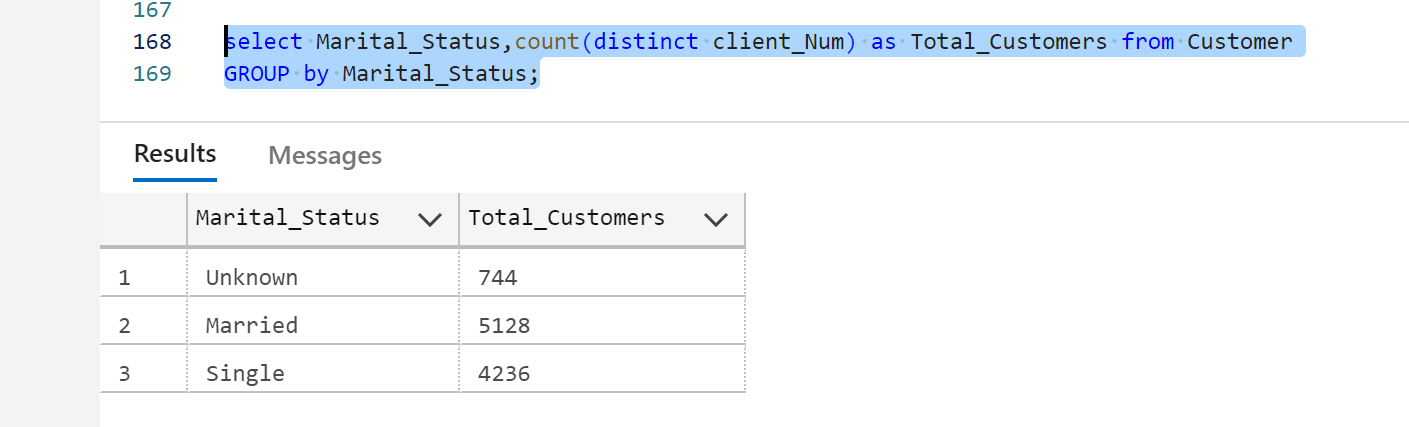
GROUP by Customer\_Job;



30. Customers by Marital Status

select Marital\_Status,count(distinct client\_Num) as Total\_Customers from Customer

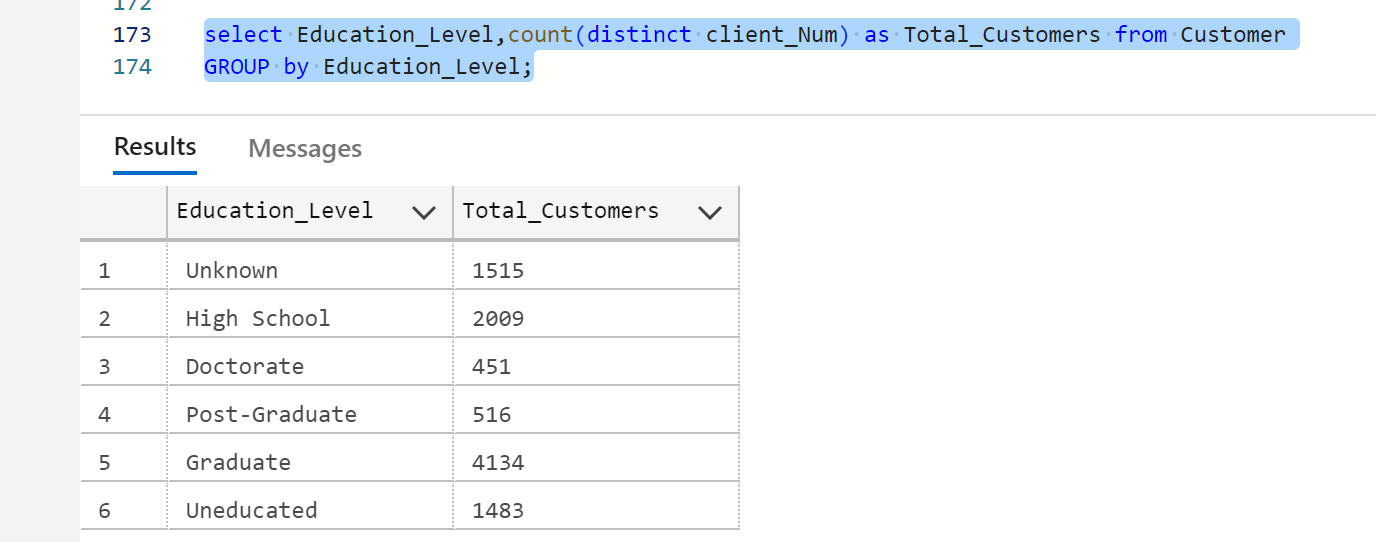
GROUP by Marital\_Status;



31. Customers by Education Level

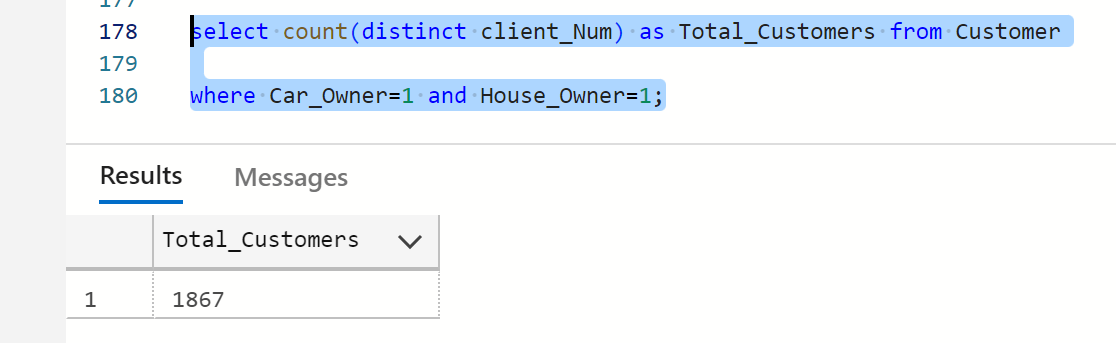
select Education\_Level,count(distinct client\_Num) as Total\_Customers from Customer

GROUP by Education\_Level;



32. Number of Customers Having House and Car

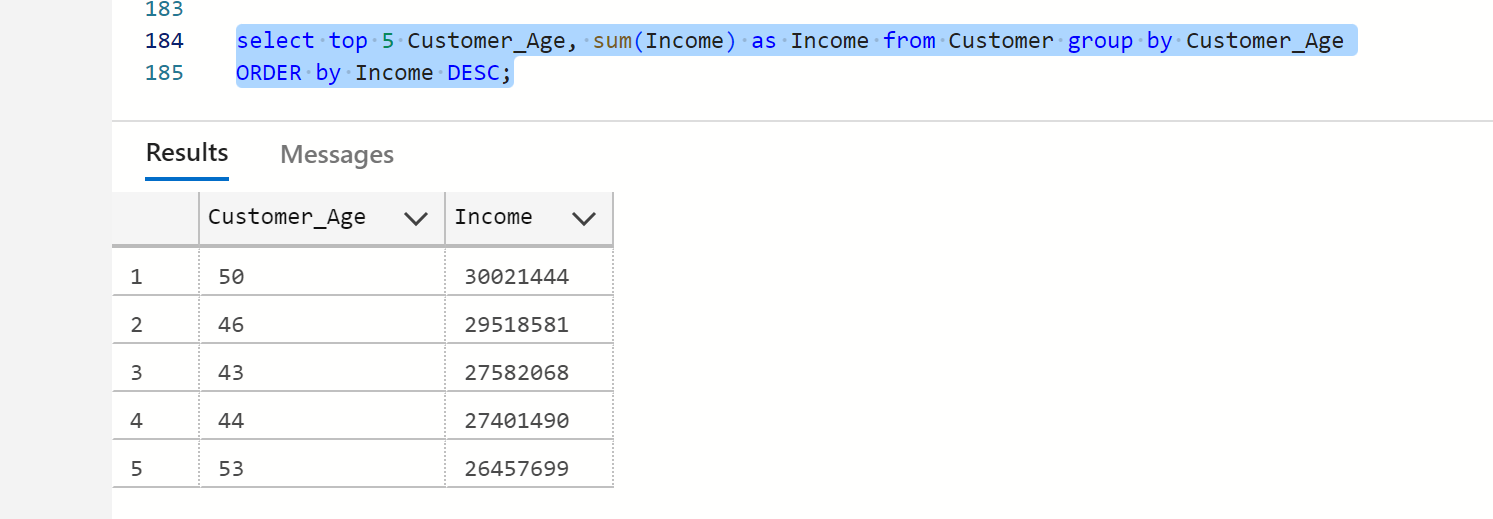
select count(distinct client\_Num) as Total\_Customers from Customer where Car\_Owner=1 and House\_Owner=1;



33. Top 5 Customer age Having High Income

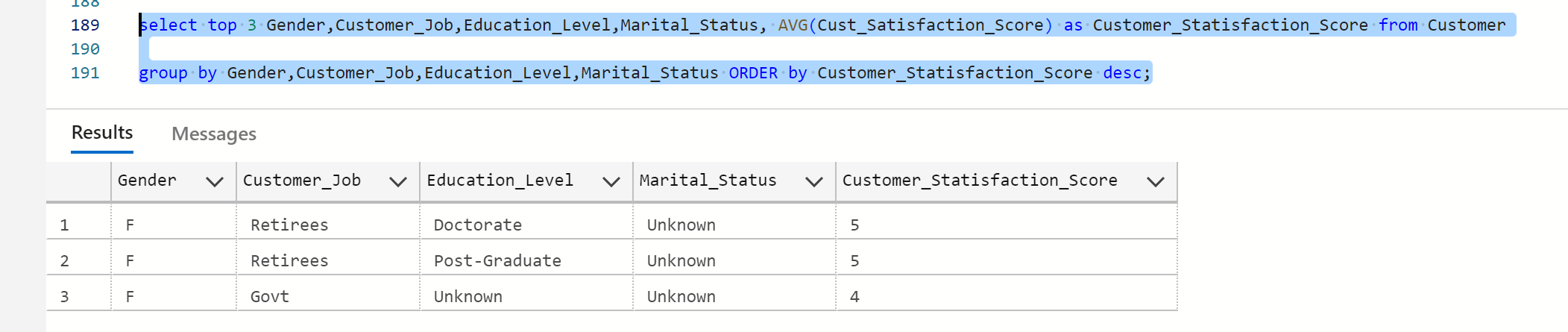
select top 5 Customer\_Age, sum(Income) as Income from Customer group by Customer\_Age

ORDER by Income DESC;



34. Top 3 Average Customer satisfaction Score by Gender, Job Type, Education, Marital Status

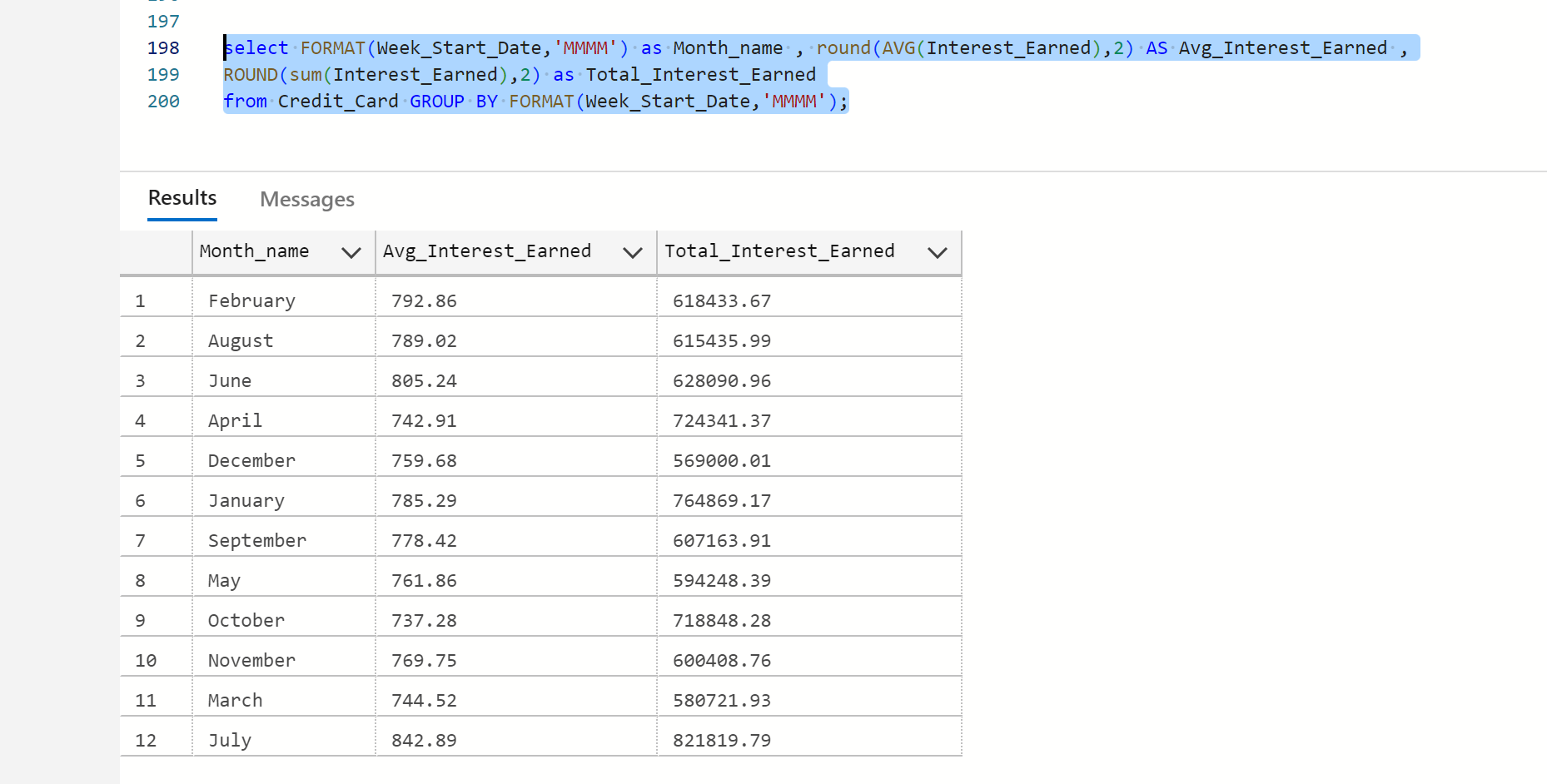
select top 3 Gender,Customer\_Job,Education\_Level,Marital\_Status,AVG(Cust\_Satisfaction\_Score) as Customer\_Statisfaction\_Score from Customer group by Gender,Customer\_Job,Education\_Level,Marital\_Status ORDER by Customer\_Statisfaction\_Score desc;



35. Monthly average Interest Earned and Total Interest earned

select FORMAT(Week\_Start\_Date,'MMMM') as Month\_name , round(AVG(Interest\_Earned),2) AS Avg\_Interest\_Earned ,ROUND(sum(Interest\_Earned),2) as Total\_Interest\_Earned

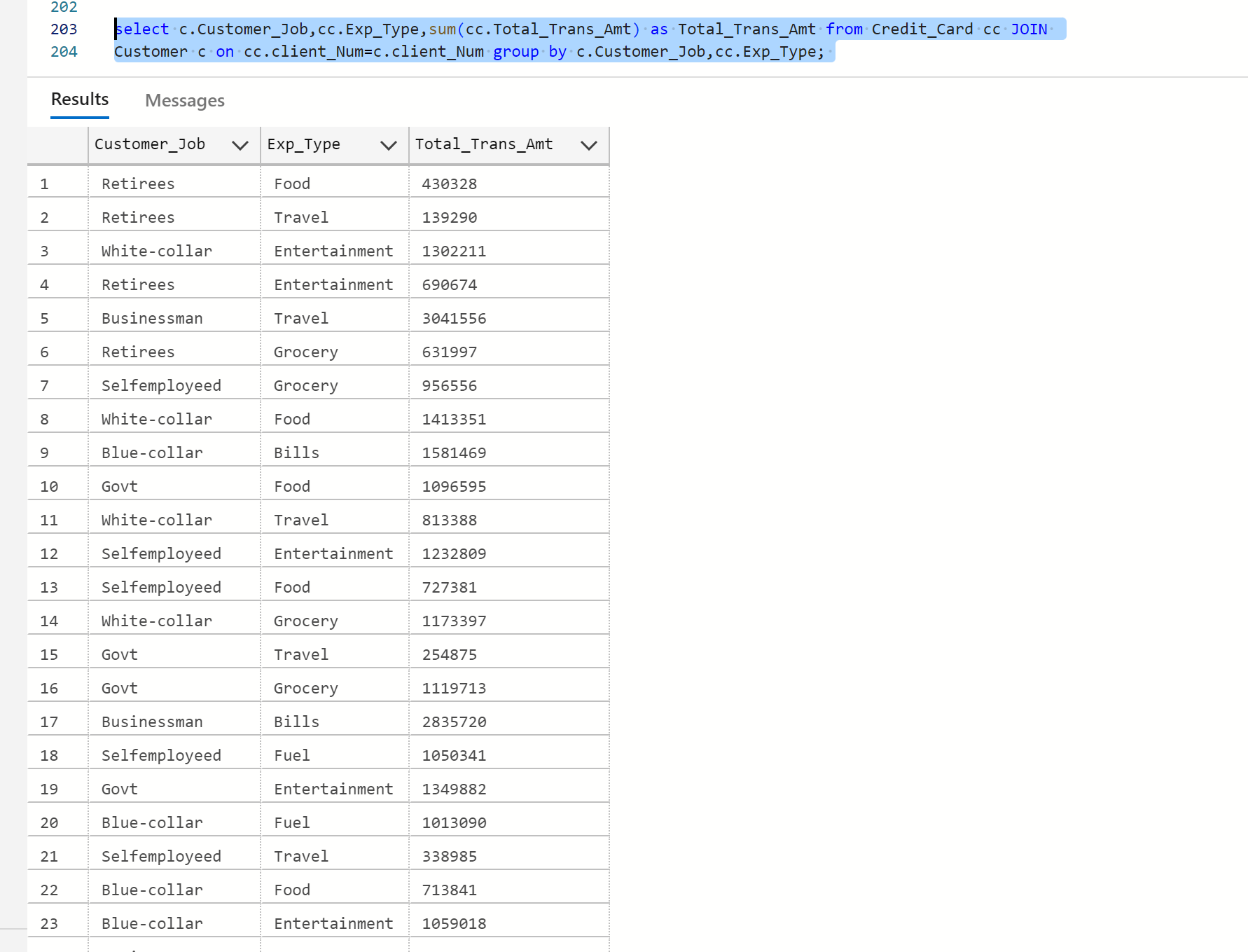
from Credit\_Card GROUP BY FORMAT(Week\_Start\_Date,'MMMM');



36. Customer Transactions by Expense Type and Job Type

select c.Customer\_Job,cc.Exp\_Type,sum(cc.Total\_Trans\_Amt) as Total\_Trans\_Amt from Credit\_Card cc JOIN

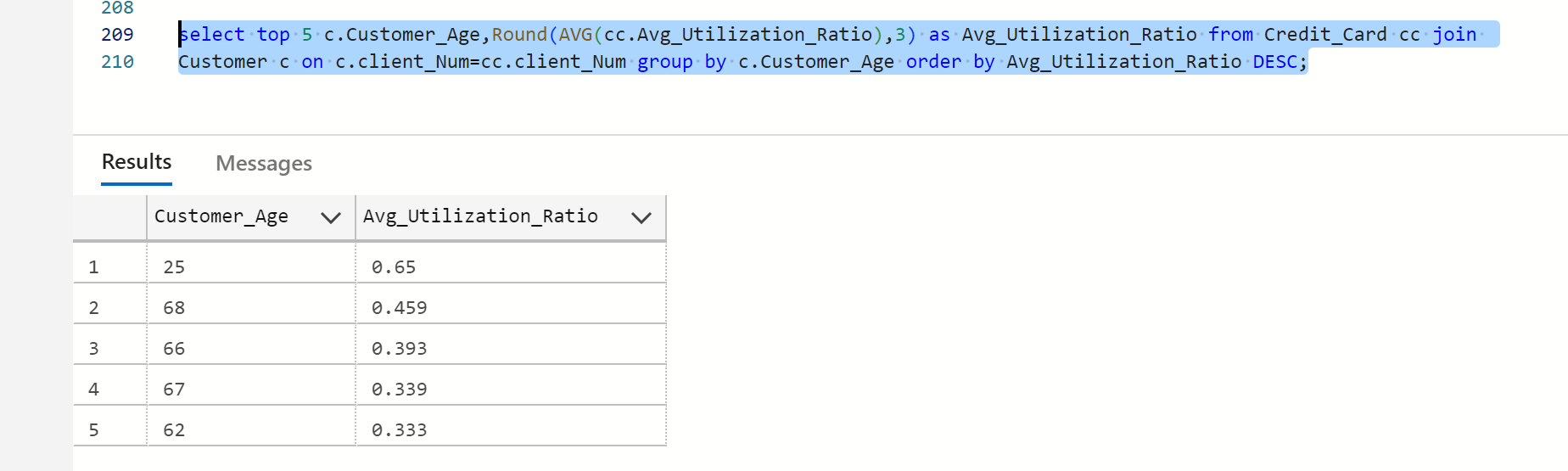
Customer c on cc.client\_Num=c.client\_Num group by c.Customer\_Job,cc.Exp\_Type;



37. Top card Avg\_Utilization\_Ratio by Customer age

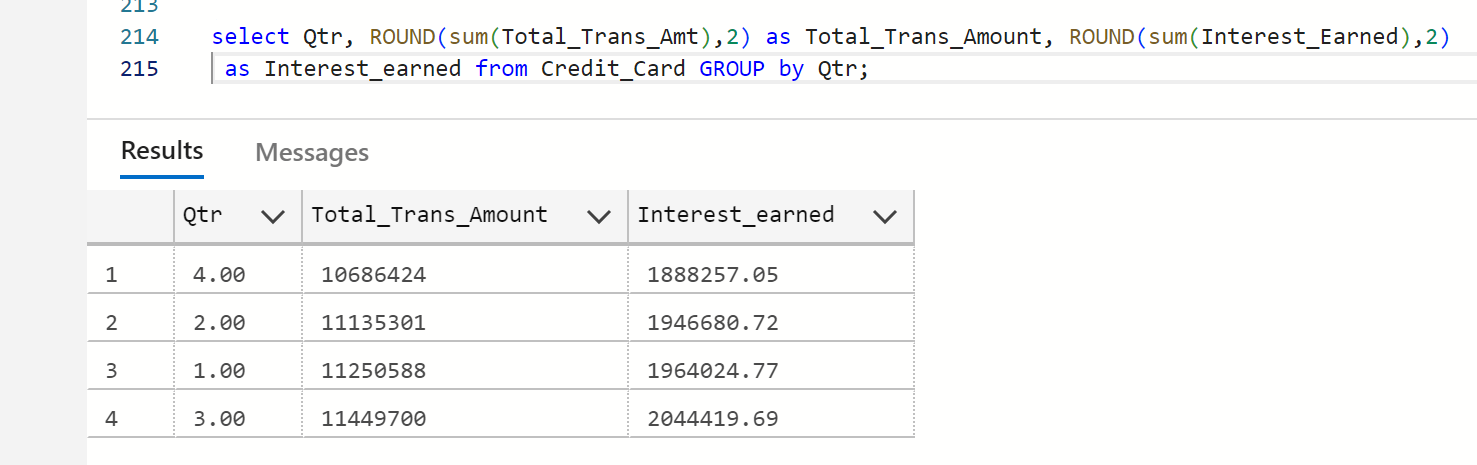
select top 5 c.Customer\_Age,Round(AVG(cc.Avg\_Utilization\_Ratio),3) as Avg\_Utilization\_Ratio from Credit\_Card cc join

Customer c on c.client\_Num=cc.client\_Num group by c.Customer\_Age order by Avg\_Utilization\_Ratio DESC;



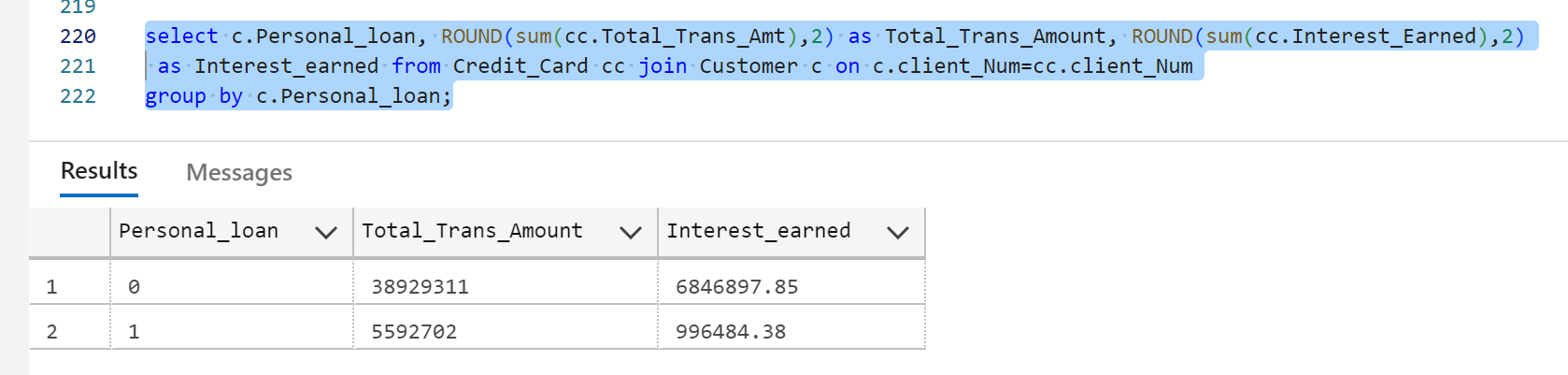
38. Transaction Amount and Interest Earned by Quarter

select Qtr, ROUND(sum(Total\_Trans\_Amt),2) as Total\_Trans\_Amount, ROUND(sum(Interest\_Earned),2) as Interest\_earned from Credit\_Card GROUP by Qtr;



39. Transaction Amount and Interest Earned by Customer Personal Loan

select c.Personal\_loan, ROUND(sum(cc.Total\_Trans\_Amt),2) as Total\_Trans\_Amount, ROUND(sum(cc.Interest\_Earned),2) as Interest\_earned from Credit\_Card cc join Customer c on c.client\_Num=cc.client\_Num group by c.Personal\_loan;



40. Monthly Revolving Balance Distribution

select FORMAT(Week\_Start\_Date,'MMMM') as Month\_Name, ROUND(sum(Total\_Revolving\_Bal),2) as Total\_Revolving\_Bal from Credit\_Card GROUP by FORMAT(Week\_Start\_Date,'MMMM');

