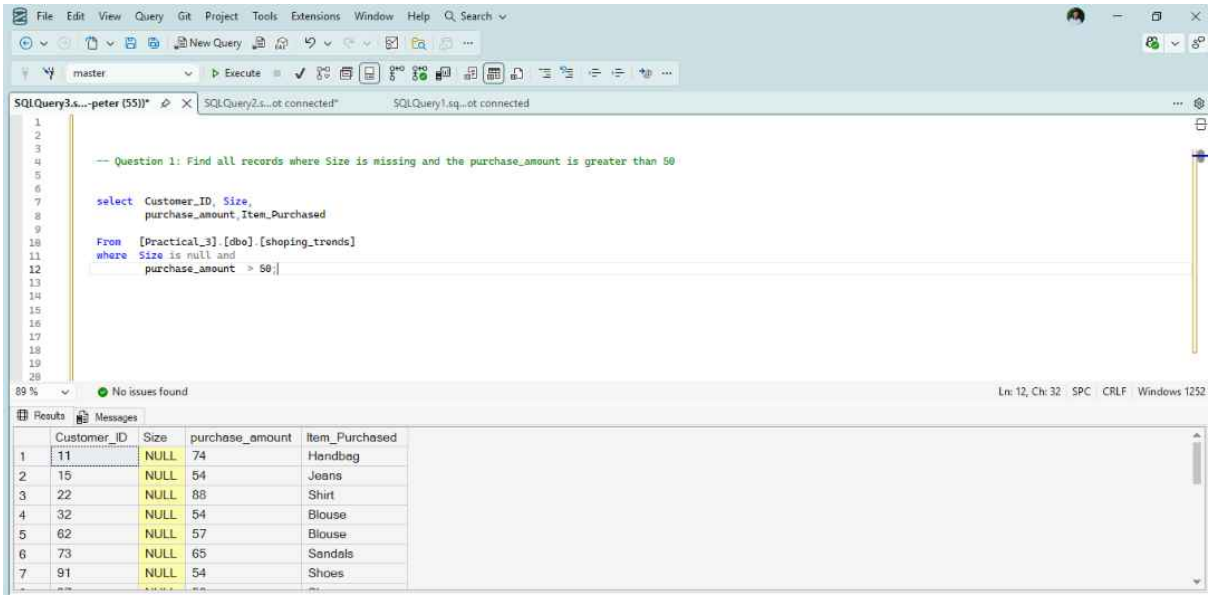
PRACTICAL EXERCISE 3

ON SQL SERVER MANAGEMENT STUDIO(SSMS)

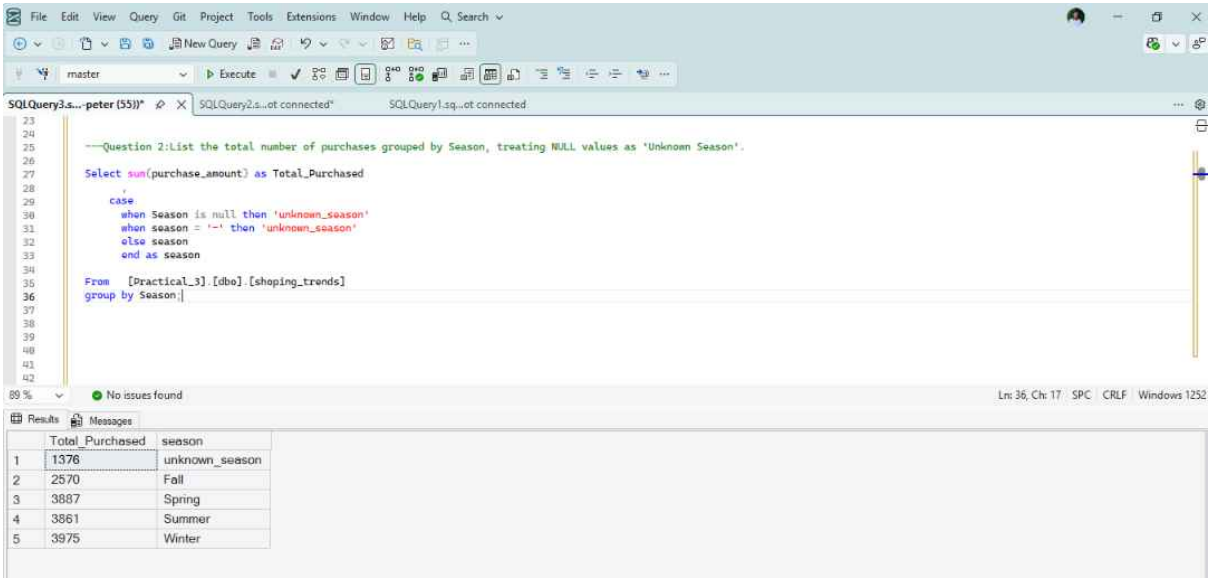
Q1. Find all records where Size is missing and the purchase_amount is greater than 50.



```
-- Question 1: Find all records where Size is missing and the purchase_amount is greater than 50

select  Customer_ID, Size,
        purchase_amount,Item_Purchased

From   [Practical_3].[dbo].[shoping_trends]
where  Size is null and
        purchase_amount  > 50;
```

	Customer_ID	Size	purchase_amount	Item_Purchased
1	11	NULL	74	Handbag
2	15	NULL	54	Jeans
3	22	NULL	88	Shirt
4	32	NULL	54	Blouse
5	62	NULL	57	Blouse
6	73	NULL	65	Sandals
7	91	NULL	54	Shoes

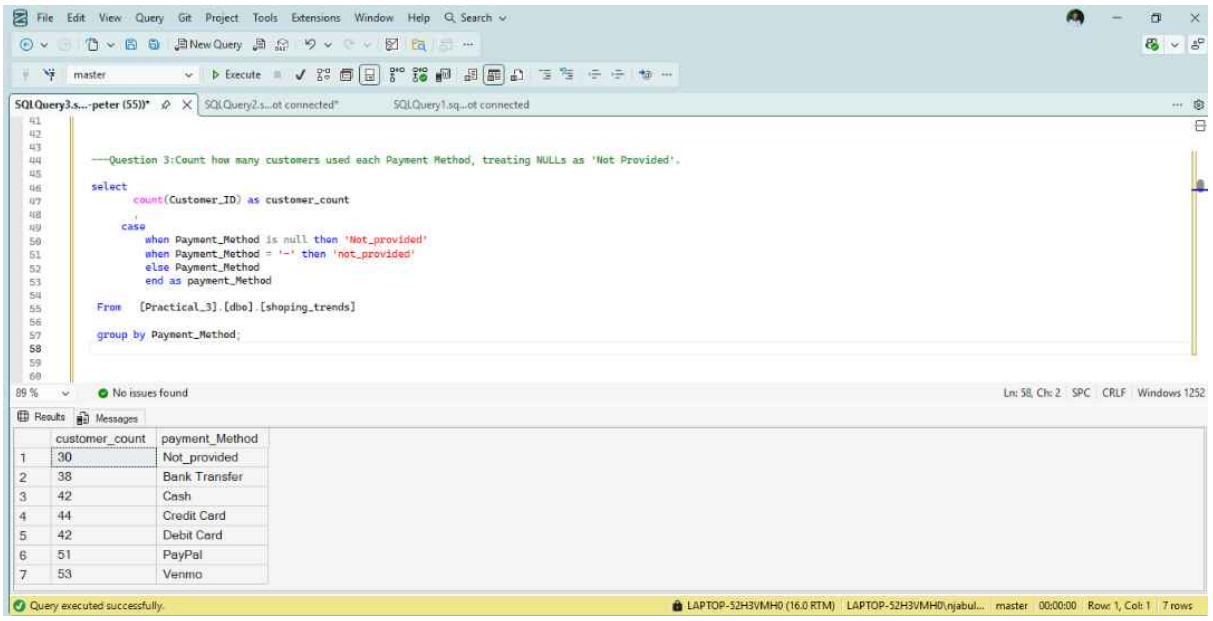
Q2.List the total number of purchases grouped by Season, treating NULL values as 'Unknown Season'.



```
---Question 2:List the total number of purchases grouped by Season, treating NULL values as 'Unknown Season'.

Select sum(purchase_amount) as Total_Purchased
      ,
    case
      when Season is null then 'unknown_season'
      when season = '-' then 'unknown_season'
      else season
      end as season

From   [Practical_3].[dbo].[shoping_trends]
group by Season;
```

	Total_Purchased	season
1	1376	unknown_season
2	2570	Fall
3	3887	Spring
4	3861	Summer
5	3975	Winter

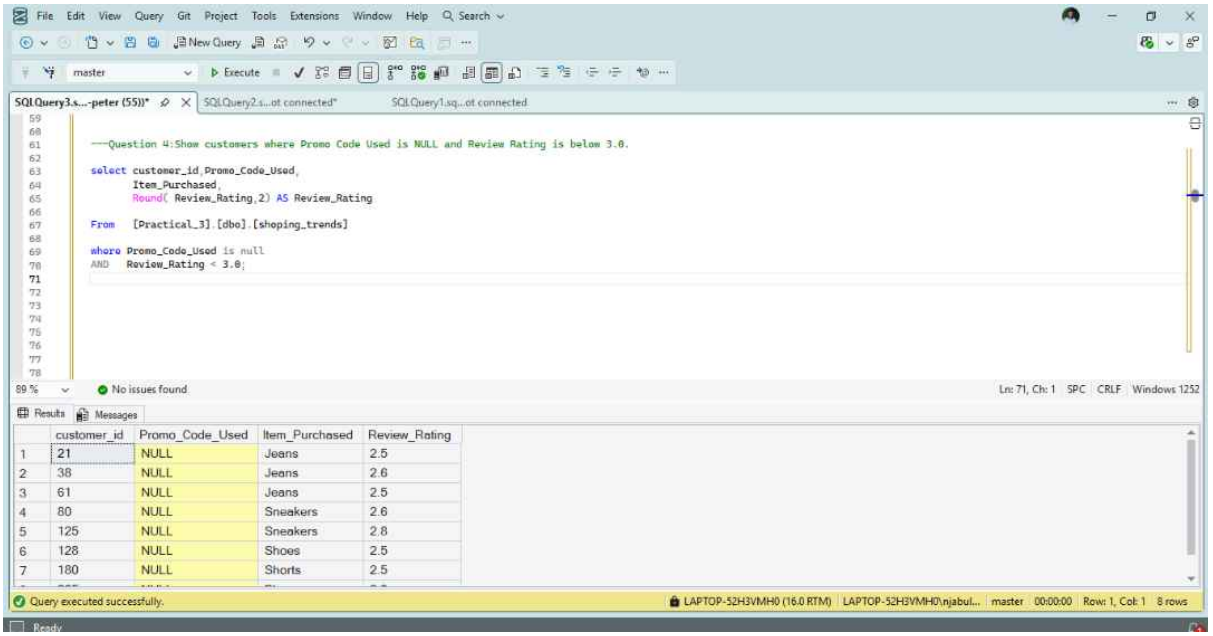
Q3.Count how many customers used each Payment Method, treating NULLs as 'Not Provided'.



```
--Question 3:Count how many customers used each Payment Method, treating NULLs as 'Not Provided'.

select
       count(Customer_ID) as customer_count
      ,
      case
          when Payment_Method is null then 'Not_provided'
          when Payment_Method = '-' then 'not_provided'
          else Payment_Method
          end as payment_Method

 From   [Practical_3].[dbo].[shoping_trends]

 group by Payment_Method;
```

	customer_count	payment_Method
1	30	Not_provided
2	38	Bank Transfer
3	42	Cash
4	44	Credit Card
5	42	Debit Card
6	51	PayPal
7	53	Venmo

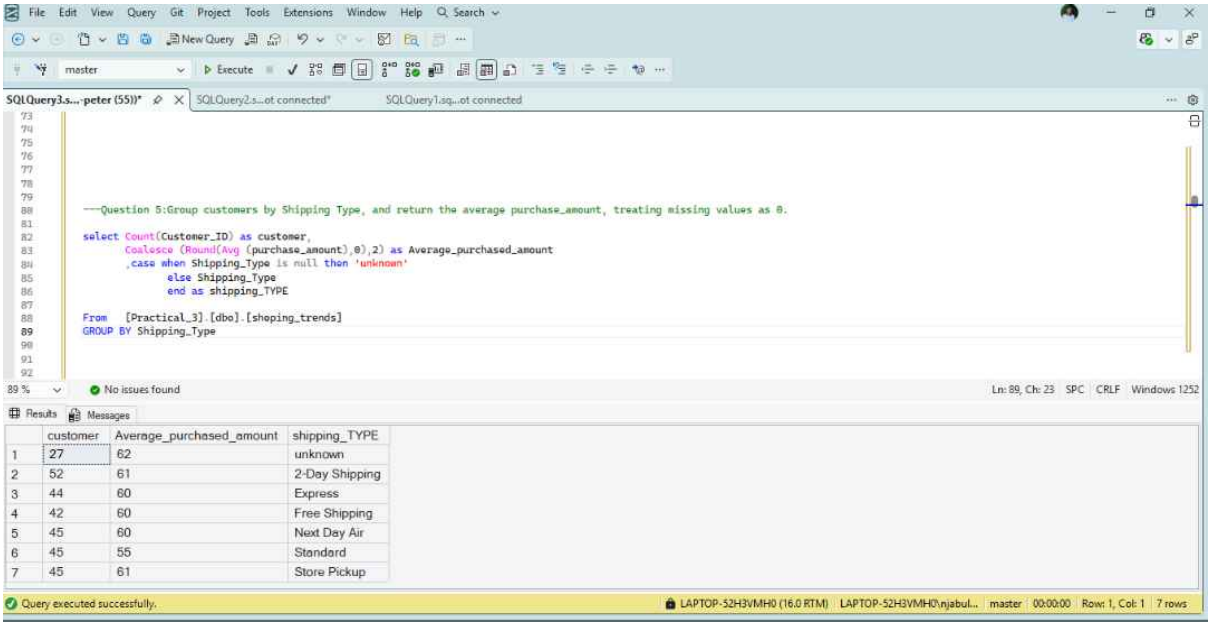
Q4 .Show customers where Promo Code Used is NULL and Review Rating is below 3.0.



```
--Question 4:Show customers where Promo Code Used is NULL and Review Rating is below 3.0.

select customer_id,Promo_Code_Used,
       Item_Purchased,
       Round( Review_Rating,2) AS Review_Rating

From   [Practical_3].[dbo].[shoping_trends]

where Promo_Code_Used is null
AND   Review_Rating < 3.0;
```

	customer_id	Promo_Code_Used	Item_Purchased	Review_Rating
1	21	NULL	Jeans	2.5
2	38	NULL	Jeans	2.6
3	61	NULL	Jeans	2.5
4	80	NULL	Sneakers	2.6
5	125	NULL	Sneakers	2.8
6	128	NULL	Shoes	2.5
7	180	NULL	Shorts	2.5

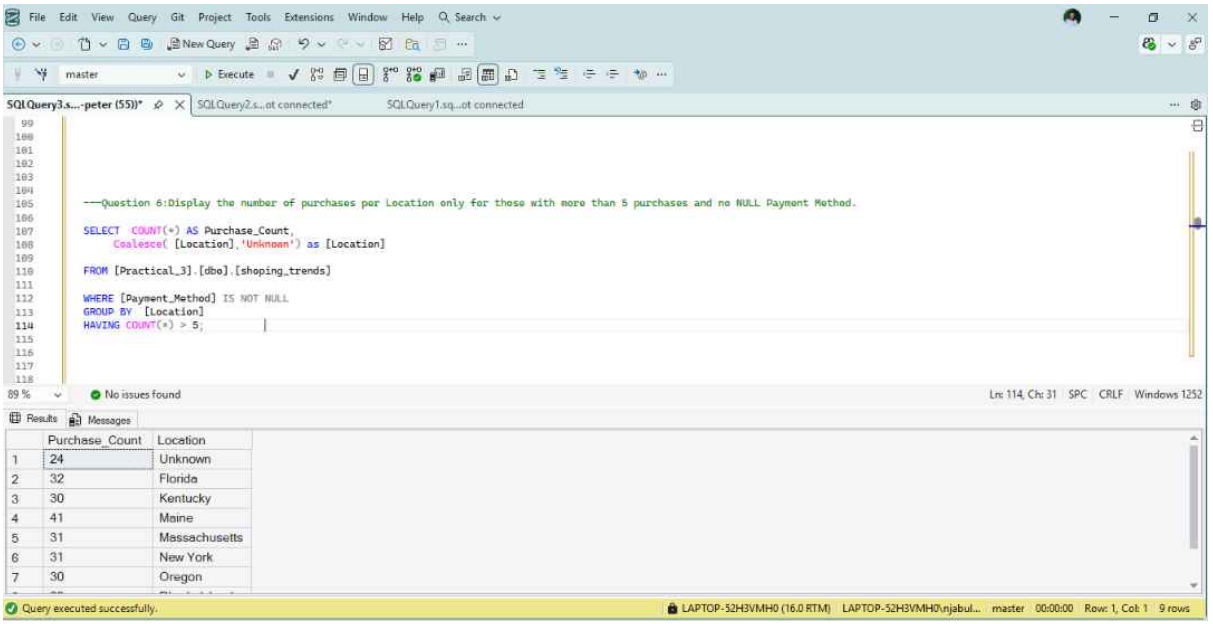
Q5.Group customers by Shipping Type, and return the average purchase_amount, treating missing values as 0.



```
---Question 5:Group customers by Shipping Type, and return the average purchase_amount, treating missing values as 0.

select Count(Customer_ID) as customer,
       Coalesce (Round(Avg (purchase_amount),0),2) as Average_purchased_amount
       ,case when Shipping_Type is null then 'unknown'
             else Shipping_Type
             end as shipping_TYPE

From   [Practical_3].[dbo].[shoping_trends]
GROUP BY Shipping_Type
```

	customer	Average_purchased_amount	shipping_TYPE
1	27	62	unknown
2	52	61	2-Day Shipping
3	44	60	Express
4	42	60	Free Shipping
5	45	60	Next Day Air
6	45	55	Standard
7	45	61	Store Pickup

Q6.Display the number of purchases per Location only for those with more than 5 purchases and no NULL Payment Method.



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---Question 6:Display the number of purchases per Location only for those with more than 5 purchases and no NULL Payment Method.

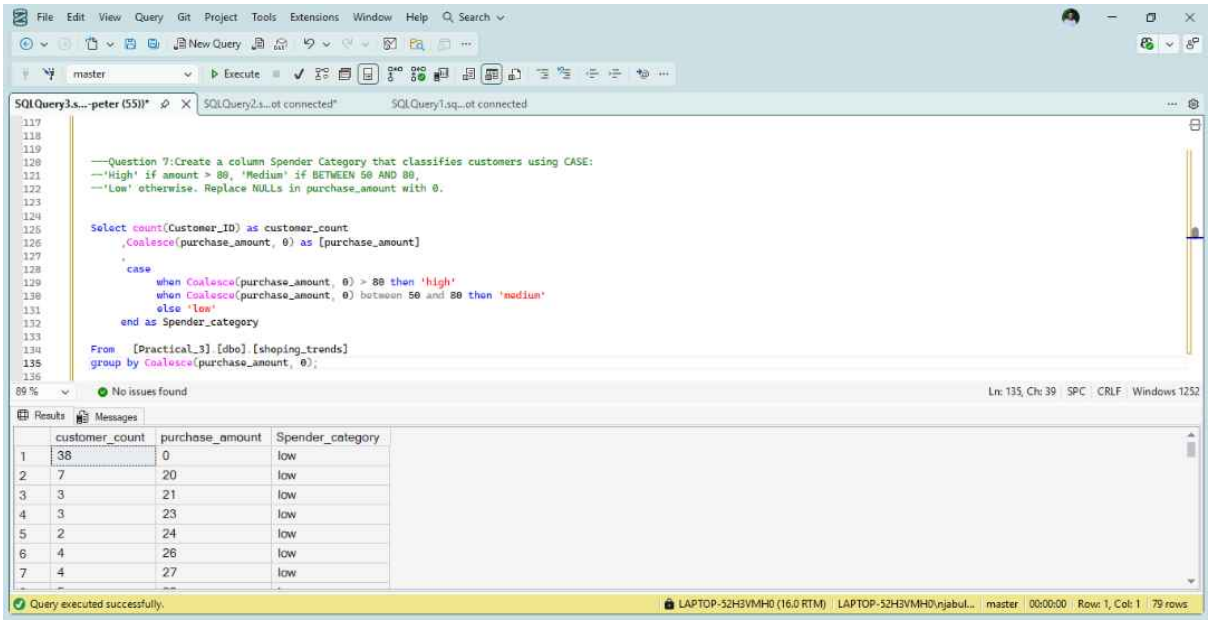
SELECT  COUNT(*) AS Purchase_Count,
     Coalesce( [Location],'Unknown') as [Location]

FROM [Practical_3].[dbo].[shoping_trends]

WHERE [Payment_Method] IS NOT NULL
GROUP BY  [Location]
HAVING COUNT(*) > 5;
```

	Purchase_Count	Location
1	24	Unknown
2	32	Florida
3	30	Kentucky
4	41	Maine
5	31	Massachusetts
6	31	New York
7	30	Oregon

Q7.Create a column Spender Category that classifies customers using CASE: 'High' if amount > 80, 'Medium' if BETWEEN 50 AND 80, 'Low' otherwise. Replace NULLs in purchase_amount with 0.



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--Question 7:Create a column Spender Category that classifies customers using CASE:
--'High' if amount > 80, 'Medium' if BETWEEN 50 AND 80,
--'Low' otherwise. Replace NULLs in purchase_amount with 0.


Select count(Customer_ID) as customer_count
     ,Coalesce(purchase_amount, 0) as [purchase_amount]
     ,
      case
           when Coalesce(purchase_amount, 0) > 80 then 'high'
           when Coalesce(purchase_amount, 0) between 50 and 80 then 'medium'
           else 'low'
      end as Spender_category

From   [Practical_3].[dbo].[shoping_trends]
group by Coalesce(purchase_amount, 0);
```
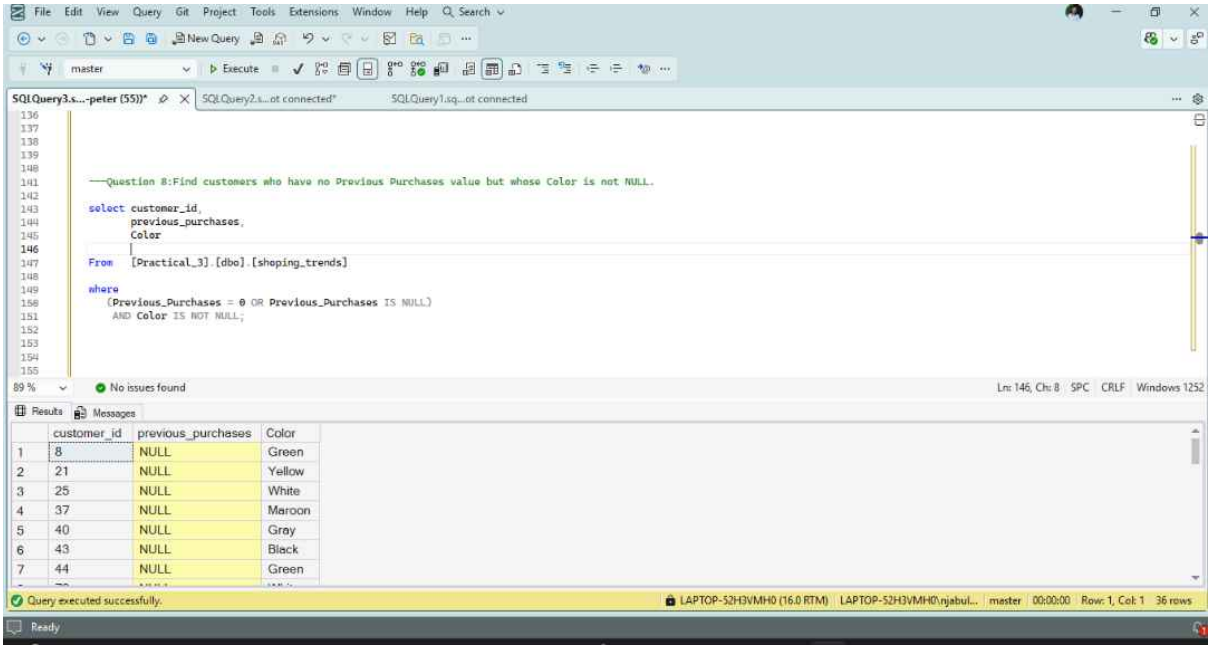

	customer_count	purchase_amount	Spender_category
1	38	0	low
2	7	20	low
3	3	21	low
4	3	23	low
5	2	24	low
6	4	26	low
7	4	27	low

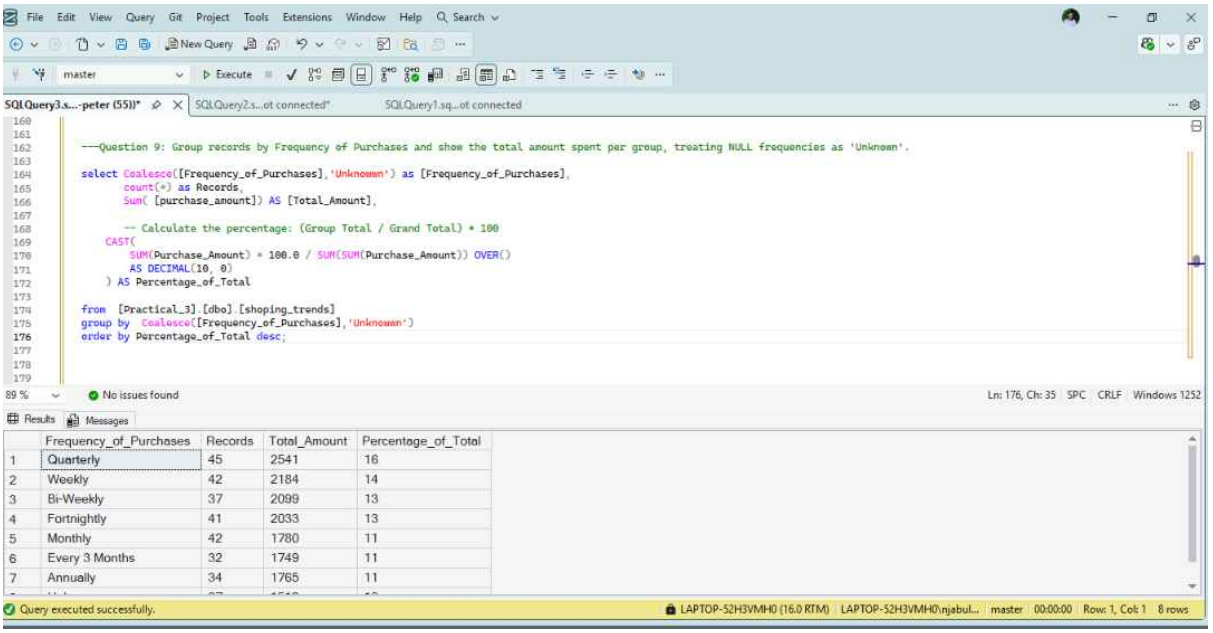
Q8.Find customers who have no Previous Purchases value but whose Color is not NULL.



```
--Question 8:Find customers who have no Previous Purchases value but whose Color is not NULL.

select customer_id,
       previous_purchases,
       Color
       |
From   [Practical_3].[dbo].[shoping_trends]

where
   (Previous_Purchases = 0 OR Previous_Purchases IS NULL)
    AND Color IS NOT NULL;
```

	customer_id	previous_purchases	Color
1	8	NULL	Green
2	21	NULL	Yellow
3	25	NULL	White
4	37	NULL	Maroon
5	40	NULL	Gray
6	43	NULL	Black
7	44	NULL	Green

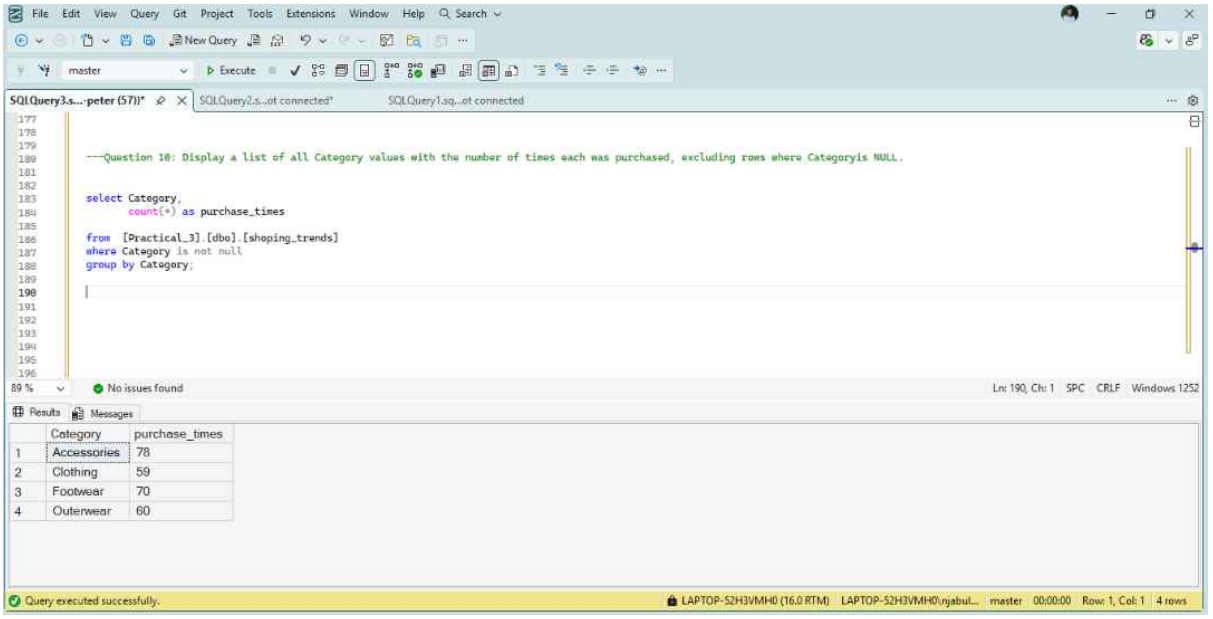
Q9.Group records by Frequency of Purchases and show the total amount spent per group, treating NULL frequencies as 'Unknown'.



```
---Question 9: Group records by Frequency of Purchases and show the total amount spent per group, treating NULL frequencies as 'Unknown'.

select Coalesce([Frequency_of_Purchases],'Unknown') as [Frequency_of_Purchases],
       count(*) as Records,
       Sum( [purchase_amount]) AS [Total_Amount],

       -- Calculate the percentage: (Group Total / Grand Total) * 100
    CAST(
        SUM(Purchase_Amount) * 100.0 / SUM(SUM(Purchase_Amount)) OVER()
        AS DECIMAL(10, 0)
    ) AS Percentage_of_Total

from  [Practical_3].[dbo].[shoping_trends]
group by  Coalesce([Frequency_of_Purchases],'Unknown')
order by Percentage_of_Total desc;
```

	Frequency_of_Purchases	Records	Total_Amount	Percentage_of_Total
1	Quarterly	45	2541	16
2	Weekly	42	2184	14
3	Bi-Weekly	37	2099	13
4	Fortnightly	41	2033	13
5	Monthly	42	1780	11
6	Every 3 Months	32	1749	11
7	Annually	34	1765	11

Q10. Display a list of all Category values with the number of times each was purchased, excluding rows where Category is NULL.



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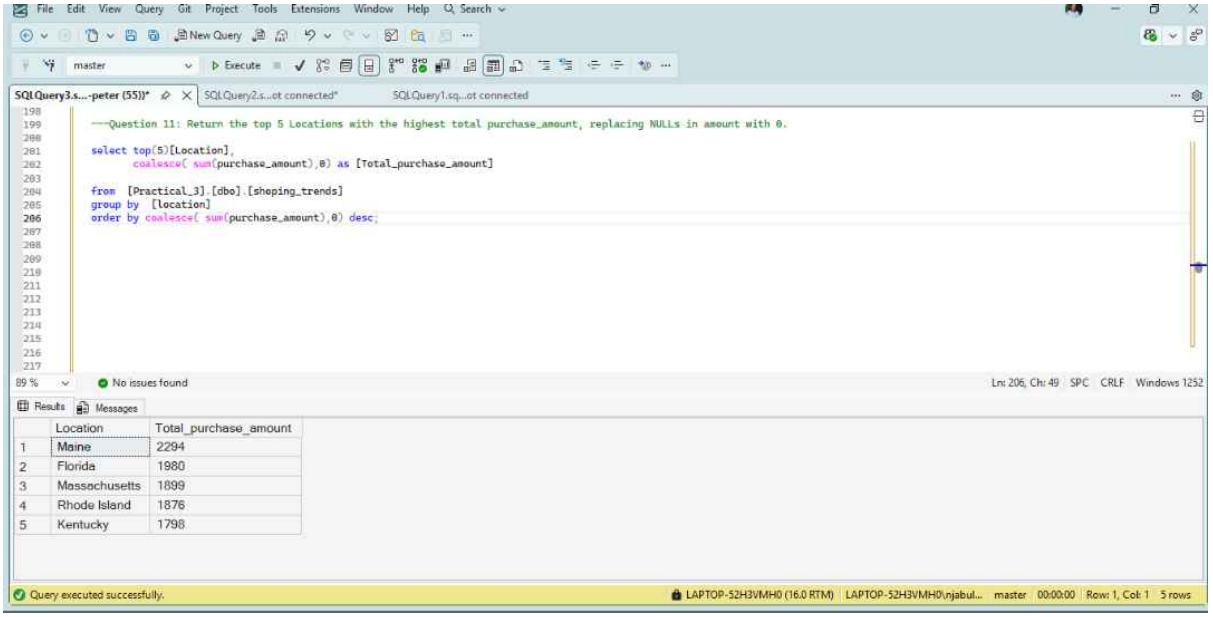
---Question 10: Display a list of all Category values with the number of times each was purchased, excluding rows where Categoryis NULL.


select Category,
       count(*) as purchase_times

from  [Practical_3].[dbo].[shoping_trends]
where Category is not null
group by Category;
```

	Category	purchase_times
1	Accessories	78
2	Clothing	59
3	Footwear	70
4	Outerwear	60

Q11 .Return the top 5 Locations with the highest total purchase_amount, replacing NULLs in amount with 0.



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---Question 11: Return the top 5 Locations with the highest total purchase_amount, replacing NULLs in amount with 0.

select top(5)[Location],
       coalesce( sum(purchase_amount),0) as [Total_purchase_amount]

from  [Practical_3].[dbo].[shoping_trends]
group by  [location]
order by coalesce( sum(purchase_amount),0) desc;
```
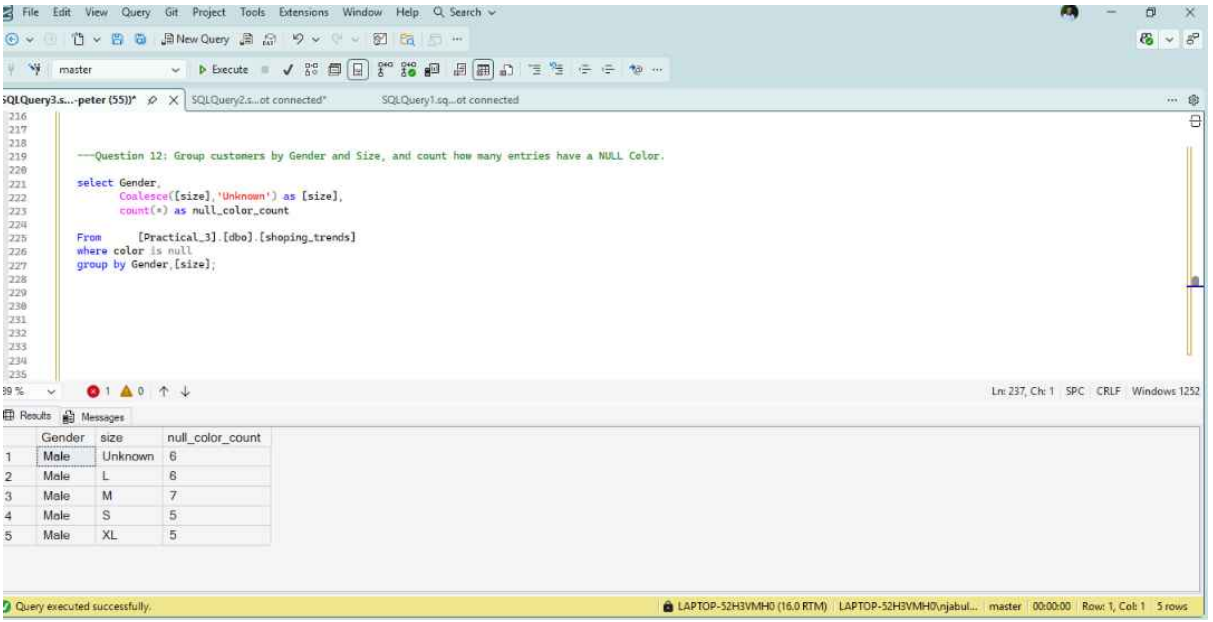

	Location	Total_purchase_amount
1	Maine	2294
2	Florida	1980
3	Massachusetts	1899
4	Rhode Island	1876
5	Kentucky	1798

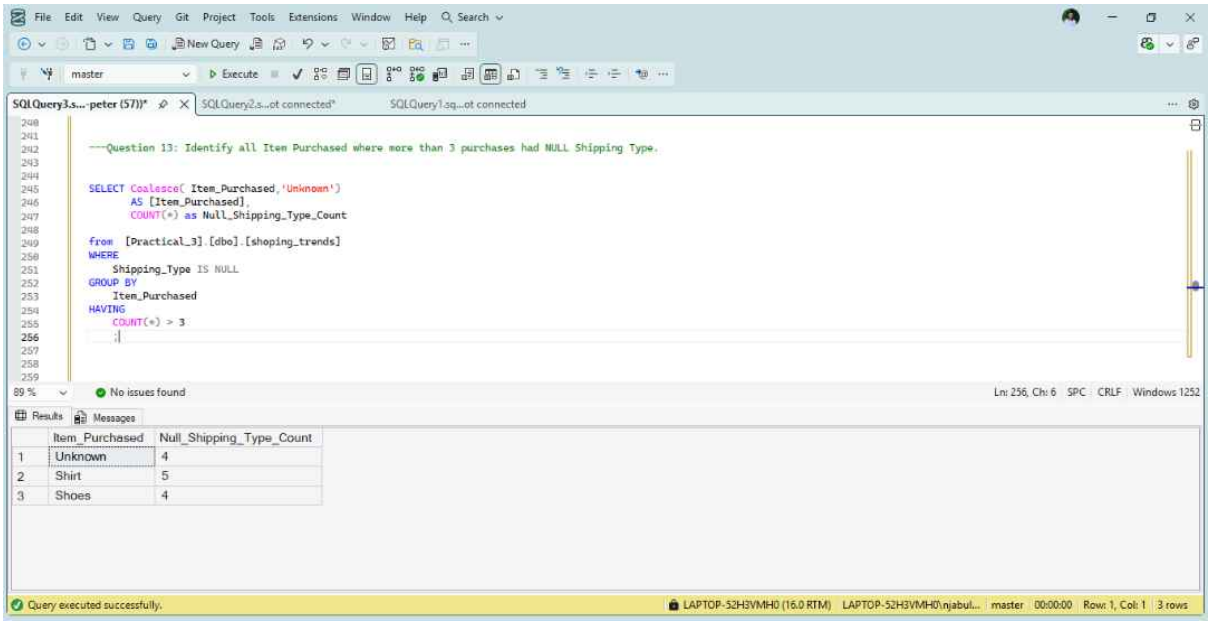
Q12.Group customers by Gender and Size, and count how many entries have a NULL Color



```
---Question 12: Group customers by Gender and Size, and count how many entries have a NULL Color.

select Gender,
       Coalesce([size],'Unknown') as [size],
       count(*) as null_color_count

From      [Practical_3].[dbo].[shoping_trends]
where color is null
group by Gender,[size];
```

	Gender	size	null_color_count
1	Male	Unknown	6
2	Male	L	6
3	Male	M	7
4	Male	S	5
5	Male	XL	5

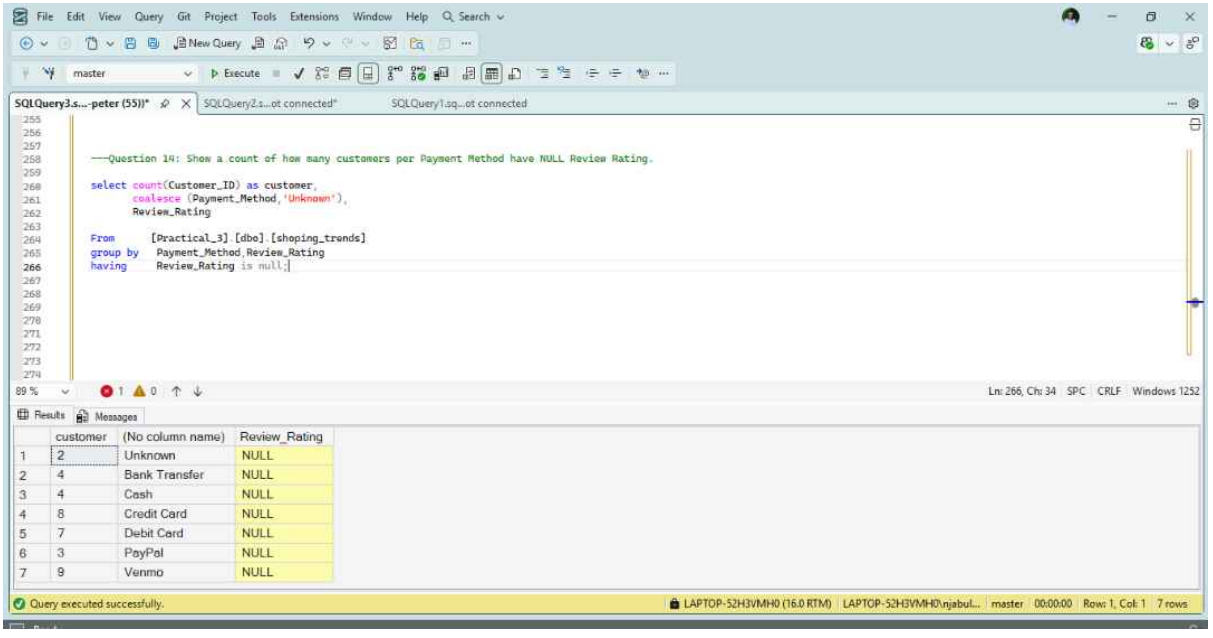
Q13.Identify all Item Purchased where more than 3 purchases had NULL Shipping Type.



```
---Question 13: Identify all Item Purchased where more than 3 purchases had NULL Shipping Type.

SELECT Coalesce( Item_Purchased,'Unknown')
      AS [Item_Purchased],
      COUNT(*) as Null_Shipping_Type_Count

from  [Practical_3].[dbo].[shoping_trends]
WHERE
    Shipping_Type IS NULL
GROUP BY
    Item_Purchased
HAVING
    COUNT(*) > 3
    ;
```

	Item_Purchased	Null_Shipping_Type_Count
1	Unknown	4
2	Shirt	5
3	Shoes	4

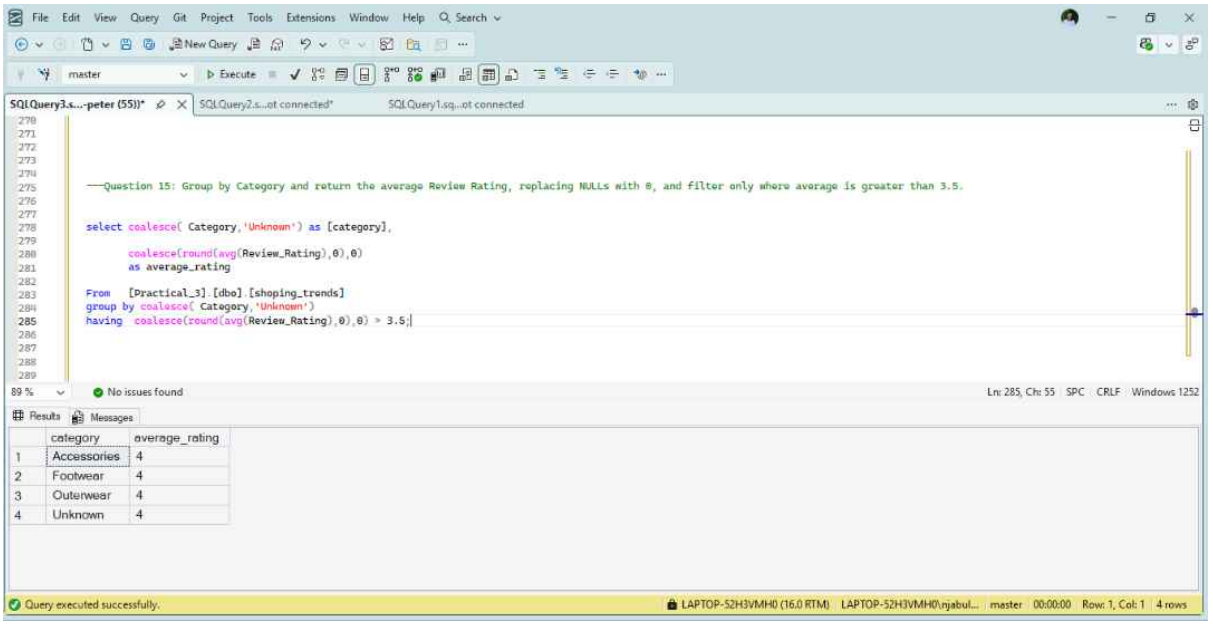
Q14. Show a count of how many customers per Payment Method have NULL Review Rating



```
---Question 14: Show a count of how many customers per Payment Method have NULL Review Rating.

select count(Customer_ID) as customer,
      coalesce (Payment_Method,'Unknown'),
      Review_Rating

From     [Practical_3].[dbo].[shoping_trends]
group by  Payment_Method,Review_Rating
having    Review_Rating is null;
```

	customer	(No column name)	Review_Rating
1	2	Unknown	NULL
2	4	Bank Transfer	NULL
3	4	Cash	NULL
4	8	Credit Card	NULL
5	7	Debit Card	NULL
6	3	PayPal	NULL
7	9	Venmo	NULL

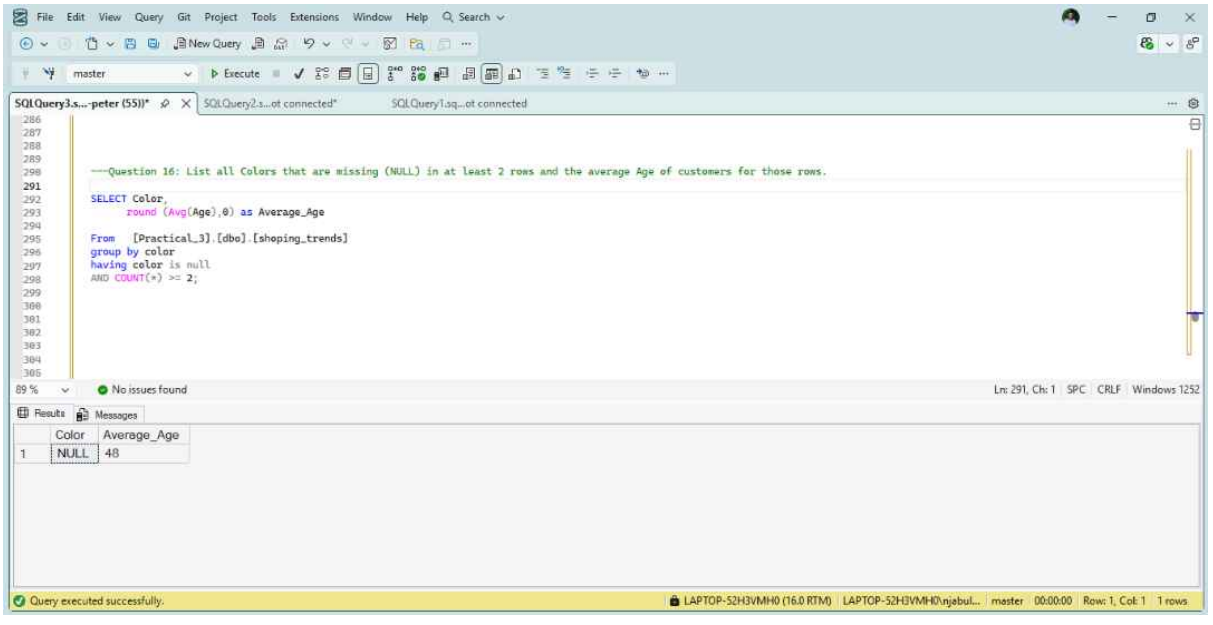
Q15.Group by Category and return the average Review Rating, replacing NULLs with 0, and filter only where average is greater than 3.5.



```
--Question 15: Group by Category and return the average Review Rating, replacing NULLs with 0, and filter only where average is greater than 3.5.

select coalesce( Category,'Unknown') as [category],
       coalesce(round(avg(Review_Rating),0),0)
       as average_rating
From   [Practical_3].[dbo].[shoping_trends]
group by coalesce( Category,'Unknown')
having  coalesce(round(avg(Review_Rating),0),0) > 3.5;
```

	category	average_rating
1	Accessories	4
2	Footwear	4
3	Outerwear	4
4	Unknown	4

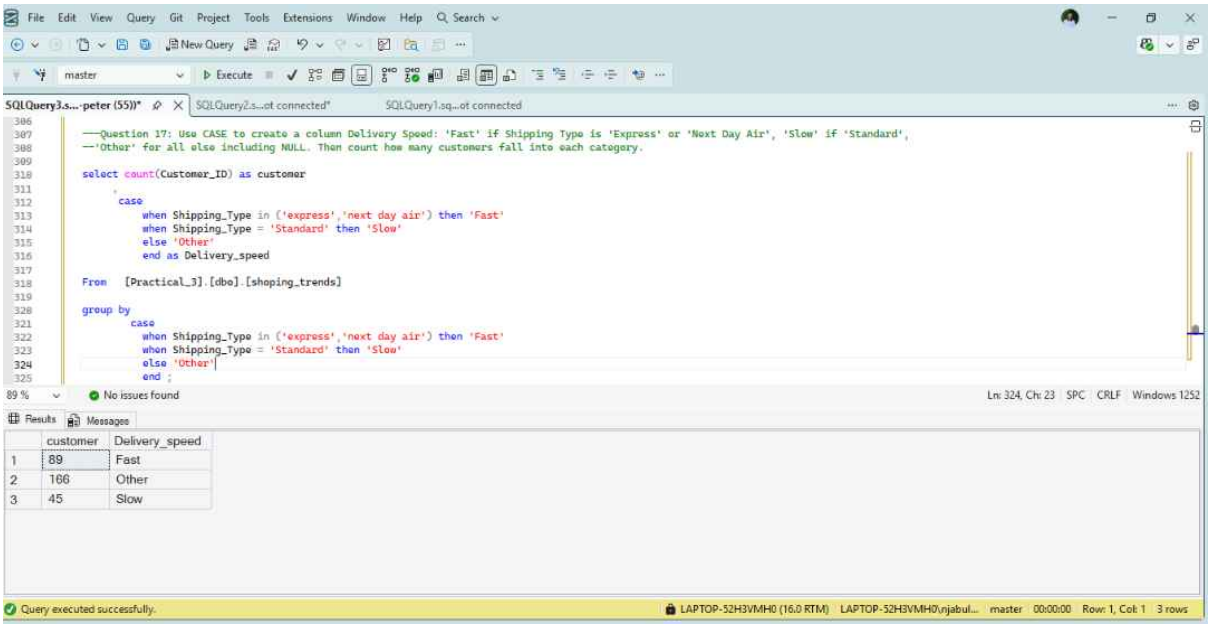
Q16.List all Colors that are missing (NULL) in at least 2 rows and the average Age of customers for those rows.



```
--Question 16: List all Colors that are missing (NULL) in at least 2 rows and the average Age of customers for those rows.

SELECT Color,
       round (Avg(Age),0) as Average_Age

From   [Practical_3].[dbo].[shoping_trends]
group by color
having color is null
AND COUNT(*) >= 2;
```

	Color	Average_Age
1	NULL	48

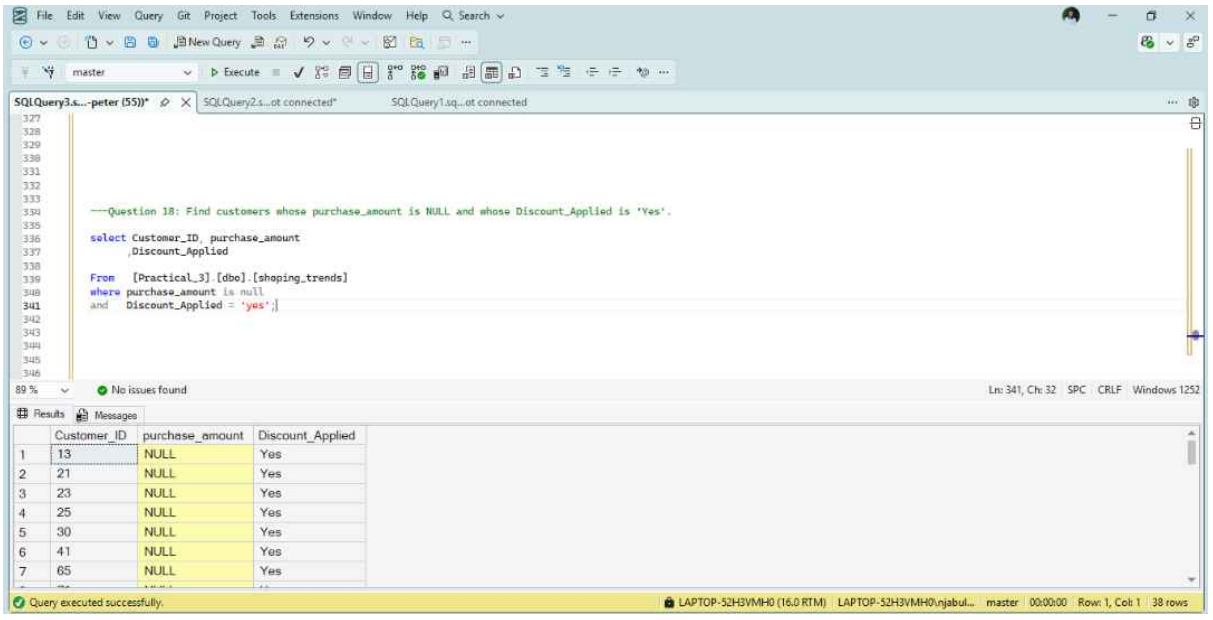
Q17.Use CASE to create a column Delivery Speed: 'Fast' if Shipping Type is 'Express' or 'Next Day Air', 'Slow' if 'Standard', 'Other' for all else including NULL. Then count how many customers fall into each category.



```
--Question 17: Use CASE to create a column Delivery Speed: 'Fast' if Shipping Type is 'Express' or 'Next Day Air', 'Slow' if 'Standard',
--'Other' for all else including NULL. Then count how many customers fall into each category.

select count(Customer_ID) as customer
      ,
      case
          when Shipping_Type in ('express','next day air') then 'Fast'
          when Shipping_Type = 'Standard' then 'Slow'
          else 'Other'
          end as Delivery_speed

From   [Practical_3].[dbo].[shoping_trends]

group by
        case
          when Shipping_Type in ('express','next day air') then 'Fast'
          when Shipping_Type = 'Standard' then 'Slow'
          else 'Other'
          end ;
```

	customer	Delivery_speed
1	89	Fast
2	166	Other
3	45	Slow

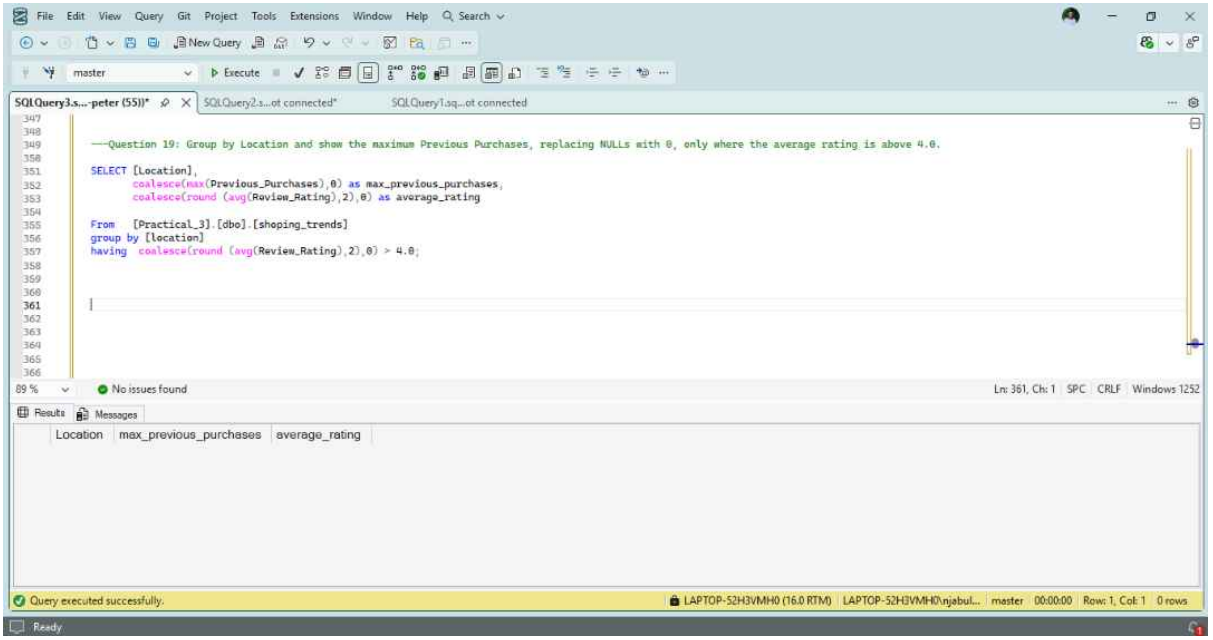
Q18. Find customers whose purchase_amount is NULL and whose Promo Code Used is 'Yes'.



```
--Question 18: Find customers whose purchase_amount is NULL and whose Discount_Applied is 'Yes'.

select Customer_ID, purchase_amount
      ,Discount_Applied

From   [Practical_3].[dbo].[shoping_trends]
where purchase_amount is null
and   Discount_Applied = 'yes';
```

	Customer_ID	purchase_amount	Discount_Applied
1	13	NULL	Yes
2	21	NULL	Yes
3	23	NULL	Yes
4	25	NULL	Yes
5	30	NULL	Yes
6	41	NULL	Yes
7	65	NULL	Yes

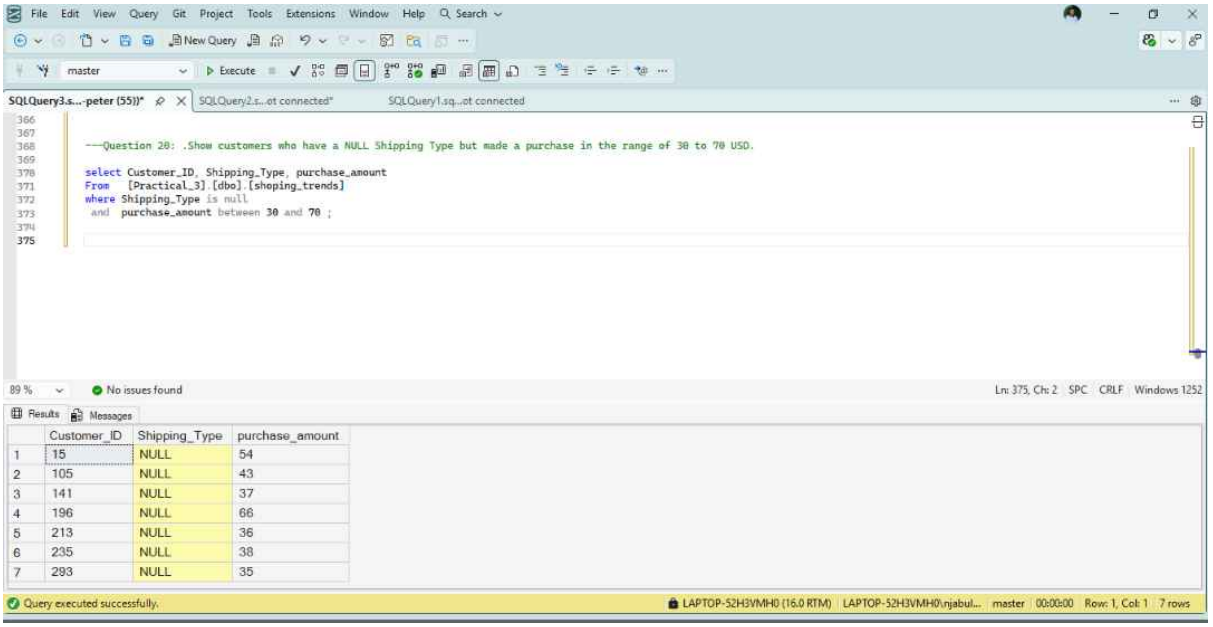
Q19. Group by Location and show the maximum Previous Purchases, replacing NULLs with 0, only where the average rating is above 4.0.



```
---Question 19: Group by Location and show the maximum Previous Purchases, replacing NULLs with 0, only where the average rating is above 4.0.

SELECT [Location],
       coalesce(max(Previous_Purchases),0) as max_previous_purchases,
       coalesce(round (avg(Review_Rating),2),0) as average_rating

From   [Practical_3].[dbo].[shoping_trends]
group by [location]
having  coalesce(round (avg(Review_Rating),2),0) > 4.0;
```

Location	max_previous_purchases	average_rating

Q20. Show customers who have a NULL Shipping Type but made a purchase in the range of 30 to 70 USD.



```
---Question 20: .Show customers who have a NULL Shipping Type but made a purchase in the range of 30 to 70 USD.

select Customer_ID, Shipping_Type, purchase_amount
From   [Practical_3].[dbo].[shoping_trends]
where Shipping_Type is null
 and  purchase_amount between 30 and 70 ;
```

	Customer_ID	Shipping_Type	purchase_amount
1	15	NULL	54
2	105	NULL	43
3	141	NULL	37
4	196	NULL	66
5	213	NULL	36
6	235	NULL	38
7	293	NULL	35