

# MS SQL SERVER QUERIES

## COFFEE SHOP SALES PROJECT

### ALTER DATE (transaction\_date) COLUMN TO DATE DATA TYPE

1) ALTER TABLE coffee\_shop\_sales

Alter COLUMN transaction\_date DATE;

2) ALTER TABLE coffee\_shop\_sales

Alter COLUMN transaction\_ID int;

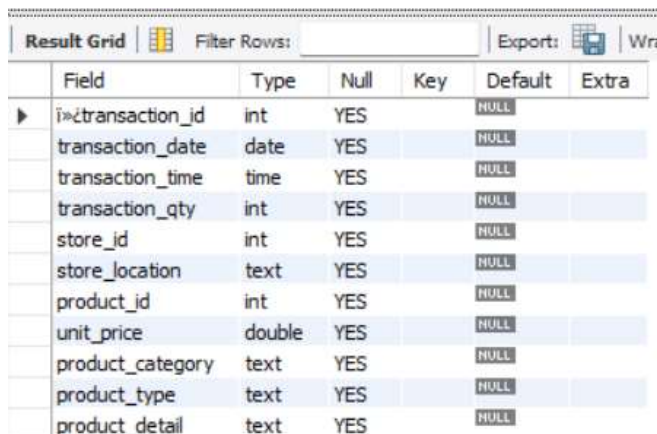
### ALTER TIME (transaction\_time) COLUMN TO DATE DATA TYPE

ALTER TABLE coffee\_shop\_sales

Alter COLUMN transaction\_time TIME;

### DATA TYPES OF DIFFERENT COLUMNS

Select \* from coffee\_shop\_sales;



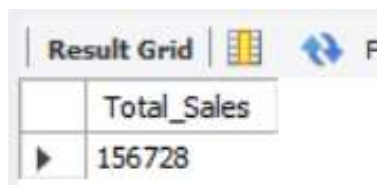
	Field	Type	Null	Key	Default	Extra
▶	transaction_id	int	YES		NULL	
	transaction_date	date	YES		NULL	
	transaction_time	time	YES		NULL	
	transaction_qty	int	YES		NULL	
	store_id	int	YES		NULL	
	store_location	text	YES		NULL	
	product_id	int	YES		NULL	
	unit_price	double	YES		NULL	
	product_category	text	YES		NULL	
	product_type	text	YES		NULL	
	product_detail	text	YES		NULL	

### TOTAL SALES

SELECT (SUM(unit\_price \* transaction\_qty)) as Total\_Sales

FROM coffee\_shop\_sales

WHERE MONTH(transaction\_date) = 5 -- for month of (CM-May)



	Total_Sales
▶	156728

### TOTAL SALES KPI - MOM DIFFERENCE AND MOM GROWTH

SELECT

```

MONTH(transaction_date) AS month,
SUM(unit_price * transaction_qty) AS total_sales,
SUM(unit_price * transaction_qty) - LAG(SUM(unit_price * transaction_qty))
OVER (ORDER BY MONTH(transaction_date)) / LAG(SUM(unit_price *
transaction_qty))
OVER (ORDER BY MONTH(transaction_date)) * 100 AS mom_increase_percentage
FROM
    coffee_shop_sales
WHERE
    MONTH(transaction_date) IN (4, 5) -- for months of April and May
GROUP BY
    MONTH(transaction_date)
ORDER BY
    MONTH(transaction_date);

```



	month	total_sales	mom_increase_percentage
▶	4	118941	NULL
	5	156728	31.769242384551315

### Explanation

#### SELECT clause:

- MONTH(transaction\_date) AS month: Extracts the month from the transaction\_date column and renames it as month.
- ROUND(SUM(unit\_price \* transaction\_qty)) AS total\_sales: Calculates the total sales by multiplying unit\_price and transaction\_qty, then sums the result for each month. The ROUND function rounds the result to the nearest integer.
- (SUM(unit\_price \* transaction\_qty) - LAG(SUM(unit\_price \* transaction\_qty), 1) OVER (ORDER BY MONTH(transaction\_date))) / LAG(SUM(unit\_price \* transaction\_qty), 1) OVER (ORDER BY MONTH(transaction\_date)) \* 100 AS mom\_increase\_percentage with the functions used:
  - SUM(unit\_price \* transaction\_qty): This calculates the total sales for the current month. It multiplies the unit\_price by the transaction\_qty for each transaction and then sums up these values.
  - LAG(SUM(unit\_price \* transaction\_qty), 1) OVER (ORDER BY MONTH(transaction\_date)): This function retrieves the value of the total sales for the previous month. It uses the LAG window function to get the value of the SUM(unit\_price \* transaction\_qty) from the previous row (previous month) ordered by the transaction\_date.
  - (SUM(unit\_price \* transaction\_qty) - LAG(SUM(unit\_price \* transaction\_qty), 1) OVER (ORDER BY MONTH(transaction\_date))): This part calculates the difference

between the total sales of the current month and the total sales of the previous month.

- $\text{LAG}(\text{SUM}(\text{unit\_price} * \text{transaction\_qty}), 1) \text{ OVER } (\text{ORDER BY MONTH}(\text{transaction\_date}))$ : This function retrieves the value of the total sales for the previous month again. It's used in the denominator to calculate the percentage increase.
- $(\text{SUM}(\text{unit\_price} * \text{transaction\_qty}) - \text{LAG}(\text{SUM}(\text{unit\_price} * \text{transaction\_qty}), 1) \text{ OVER } (\text{ORDER BY MONTH}(\text{transaction\_date}))) / \text{LAG}(\text{SUM}(\text{unit\_price} * \text{transaction\_qty}), 1) \text{ OVER } (\text{ORDER BY MONTH}(\text{transaction\_date}))$ : This calculates the ratio of the difference in sales between the current and previous months to the total sales of the previous month. It represents the percentage increase or decrease in sales compared to the previous month.
- 100: This part multiplies the ratio by 100 to convert it to a percentage.
- FROM clause:  
coffee\_shop\_sales: Specifies the table from which data is being selected.
- WHERE clause:  
 $\text{MONTH}(\text{transaction\_date}) \text{ IN } (4, 5)$ : Filters the data to include only transactions from April and May.
- GROUP BY clause:  
 $\text{MONTH}(\text{transaction\_date})$ : Groups the results by month.
- ORDER BY clause:  
 $\text{MONTH}(\text{transaction\_date})$ : Orders the results by month.

## TOTAL ORDERS

```
SELECT COUNT(transaction_id) as Total_Orders
```

```
FROM coffee_shop_sales
```

```
WHERE MONTH (transaction_date)= 5 -- for month of (CM-May)
```



	Total_Orders
▶	33527

## TOTAL ORDERS KPI - MOM DIFFERENCE AND MOM GROWTH

```
SELECT
```

```
MONTH(transaction_date) AS month,
```

```

COUNT(transaction_id) AS total_orders,
COUNT(transaction_id) - LAG(COUNT(transaction_id))
OVER (ORDER BY MONTH(transaction_date)) / LAG(COUNT(transaction_id), 1)
OVER (ORDER BY MONTH(transaction_date)) * 100 AS mom_increase_percentage
FROM
    coffee_shop_sales
WHERE
    MONTH(transaction_date) IN (4, 5) -- for April and May
GROUP BY
    MONTH(transaction_date)
ORDER BY
    MONTH(transaction_date);

```

Result Grid			
	month	total_orders	mom_increase_percentage
▶	4	25335	NULL
	5	33527	32.3347

### TOTAL QUANTITY SOLD

```

SELECT SUM(transaction_qty) as Total_Quantity_Sold
FROM coffee_shop_sales
WHERE MONTH(transaction_date) = 5 -- for month of (CM-May)

```

Result Grid	
	Total_Quantity_Sold
▶	48233

### TOTAL QUANTITY SOLD KPI - MOM DIFFERENCE AND MOM GROWTH

```

SELECT
    MONTH(transaction_date) AS month,

```

```

SUM(transaction_qty)) AS total_quantity_sold,
SUM(transaction_qty) - LAG(SUM(transaction_qty)),
OVER (ORDER BY MONTH(transaction_date)) / LAG(SUM(transaction_qty))
OVER (ORDER BY MONTH(transaction_date)) * 100 AS mom_increase_percentage
FROM
    coffee_shop_sales
WHERE
    MONTH(transaction_date) IN (4, 5) -- for April and May
GROUP BY
    MONTH(transaction_date)
ORDER BY
    MONTH(transaction_date);

```

Result Grid			
	month	total_quantity_sold	mom_increase_percentage
▶	4	36469	NULL
	5	48233	32.2575

### CALENDAR TABLE – DAILY SALES, QUANTITY and TOTAL ORDERS

```

SELECT
    SUM(unit_price * transaction_qty) AS total_sales,
    SUM(transaction_qty) AS total_quantity_sold,
    COUNT(transaction_id) AS total_orders
FROM
    coffee_shop_sales
WHERE
    transaction_date = '2023-05-18'; --For 18 May 2023

```

Result Grid			
	total_sales	total_quantity_sold	total_orders
▶	5583.470000000001	1659	1192

**If you want to get exact Rounded off values then use below query to get the result:**

```
SELECT
    CONCAT(ROUND(SUM(unit_price * transaction_qty) / 1000, 1),'K') AS total_sales,
    CONCAT(ROUND(COUNT(transaction_id) / 1000, 1),'K') AS total_orders,
    CONCAT(ROUND(SUM(transaction_qty) / 1000, 1),'K') AS total_quantity_sold
FROM
    coffee_shop_sales
WHERE
    transaction_date = '2023-05-18'; --For 18 May 2023
```

Result Grid			
	total_sales	total_orders	total_quantity_sold
▶	5.6K	1.2K	1.7K

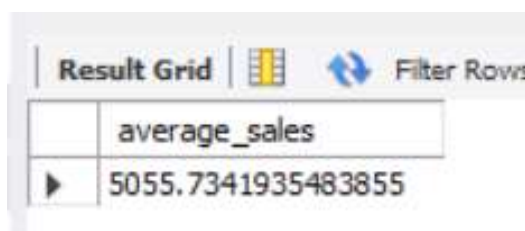
### SALES TREND OVER PERIOD

```
SELECT AVG(total_sales) AS average_sales
FROM (
    SELECT
        SUM(unit_price * transaction_qty) AS total_sales
    FROM
        coffee_shop_sales
    WHERE
        MONTH(transaction_date) = 5 -- Filter for May
```

```
GROUP BY  
    transaction_date  
) AS internal_query;
```

**Query Explanation:**

- This inner subquery calculates the total sales (unit\_price \* transaction\_qty) for each date in May. It filters the data to include only transactions that occurred in May by using the MONTH() function to extract the month from the transaction\_date column and filtering for May (month number 5).
- The GROUP BY clause groups the data by transaction\_date, ensuring that the total sales are aggregated for each individual date in May.
- The outer query calculates the average of the total sales over all dates in May. It references the result of the inner subquery as a derived table named internal\_query.
- The AVG() function calculates the average of the total\_sales column from the derived table, giving us the average sales for May.



The screenshot shows a database interface with a 'Result Grid' tab. The grid contains a single row with the column name 'average\_sales' and the value '5055.7341935483855'. There are also icons for 'Filter Rows' and a refresh button.

average_sales
5055.7341935483855

**DAILY SALES FOR MONTH SELECTED**

```
SELECT  
    DAY(transaction_date) AS day_of_month,  
    ROUND(SUM(unit_price * transaction_qty),1) AS total_sales  
FROM  
    coffee_shop_sales  
WHERE  
    MONTH(transaction_date) = 5 -- Filter for May  
GROUP BY  
    DAY(transaction_date)  
ORDER BY  
    DAY(transaction_date);
```

Result Grid			Filter Rows:
	day_of_month	total_sales	
▶	1	4731.4	
	2	4625.5	
	3	4714.6	
	4	4589.7	
	5	4701	
	6	4205.1	
	7	4542.7	
	8	5604.2	
	9	5101	
	10	5256.3	
	11	4850.1	
	12	4681.1	
	13	5511.5	
	14	5052.6	
	15	5385	
	16	5542.1	

17	5418
18	5583.5
19	5657.9
20	5519.3
21	5370.8
22	5541.2
23	5242.9
24	5391.4
25	5230.8
26	5300.9
27	5559.2
28	4338.6
29	3959.5
30	4835.5
31	4684.1

**COMPARING DAILY SALES WITH AVERAGE SALES – IF GREATER THAN “ABOVE AVERAGE” and LESSER THAN “BELOW AVERAGE”**

```

SELECT
    day_of_month,
    CASE
        WHEN total_sales > avg_sales THEN 'Above Average'
        WHEN total_sales < avg_sales THEN 'Below Average'
        ELSE 'Average'
    END AS sales_status,
    total_sales
FROM (
    SELECT
        DAY(transaction_date) AS day_of_month,
        SUM(unit_price * transaction_qty) AS total_sales,
        AVG(SUM(unit_price * transaction_qty)) OVER () AS avg_sales
    FROM
        coffee_shop_sales
    WHERE
        MONTH(transaction_date) = 5 -- Filter for May
    GROUP BY
        DAY(transaction_date)

```



) AS sales\_data

ORDER BY

day\_of\_month;

day_of_month	sales_status	total_sales
1	Below Average	4731.449999999999
2	Below Average	4625.499999999997
3	Below Average	4714.599999999994
4	Below Average	4589.699999999995
5	Below Average	4700.999999999997
6	Below Average	4205.149999999998
7	Below Average	4542.699999999998
8	Above Average	5604.209999999995
9	Above Average	5100.969999999997
10	Above Average	5256.329999999999
11	Below Average	4850.059999999996
12	Below Average	4681.1299999999965
13	Above Average	5511.529999999999
14	Below Average	5052.649999999999
15	Above Average	5384.9800000000005
16	Above Average	5542.129999999997

17	Above Average	5418.000000000001
18	Above Average	5583.470000000001
19	Above Average	5657.880000000005
20	Above Average	5519.280000000003
21	Above Average	5370.810000000003
22	Above Average	5541.16
23	Above Average	5242.910000000001
24	Above Average	5391.45
25	Above Average	5230.8499999999985
26	Above Average	5300.949999999998
27	Above Average	5559.1500000000015
28	Below Average	4338.649999999998
29	Below Average	3959.499999999998
30	Below Average	4835.479999999997
31	Below Average	4684.129999999993

#### SALES BY WEEKDAY / WEEKEND:

```
select
case when datepart(weekday,transaction_date) in (1,7) then 'weekends'
else 'weekdays'
end as holidays,
sum(unit_price * transaction_qty) as totalsale from [coffee_sales ]
where MONTH(transaction_date)=5
group by
case when datepart(weekday,transaction_date) in (1,7) then 'weekends'
else 'weekdays'
```

end

Result Grid			Filter Rows:
	day_type	total_sales	
▶	Weekdays	116627.84	
	Weekends	40099.92	

### SALES BY STORE LOCATION

```
SELECT
    store_location,
    SUM(unit_price * transaction_qty) as Total_Sales
FROM coffee_shop_sales
WHERE
    MONTH(transaction_date) =5
GROUP BY store_location
ORDER BY SUM(unit_price * transaction_qty) DESC
```

Result Grid			Filter Rows:	Exports
	store_location	Total_Sales		
▶	Hell's Kitchen	52598.9299999999375		
	Astoria	52428.759999999932		
	Lower Manhattan	51700.069999999959		



### SALES BY PRODUCT CATEGORY

```
SELECT
    product_category,
    ROUND(SUM(unit_price * transaction_qty),1) as Total_Sales
FROM coffee_shop_sales
WHERE
    MONTH(transaction_date) = 5
GROUP BY product_category
ORDER BY SUM(unit_price * transaction_qty) DESC
```

Result Grid			Filter Rows:
	product_category	Total_Sales	
▶	Coffee	60362.8	
	Tea	44539.8	
	Bakery	18565.5	
	Drinking Chocolate	16319.8	
	Coffee beans	8768.9	
	Branded	2889	
	Loose Tea	2395.2	
	Flavours	1905.6	
	Packaged Chocolate	981.1	

### SALES BY PRODUCTS (TOP 10)

```
SELECT Top 10
    product_type,
    ROUND(SUM(unit_price * transaction_qty),1) as Total_Sales
FROM coffee_shop_sales
WHERE
    MONTH(transaction_date) = 5
GROUP BY product_type
ORDER BY SUM(unit_price * transaction_qty) DESC
```

Result Grid   Filter Rows: <input type="text"/>		
	product_type	Total_Sales
▶	Barista Espresso	20423.7
	Brewed Chai tea	17427.4
	Hot chocolate	16319.8
	Gourmet brewed coffee	15559.2
	Brewed herbal tea	10930
	Brewed Black tea	10778
	Premium brewed coffee	8739.2
	Organic brewed coffee	8350.2
	Scone	8305.3
	Drip coffee	7290.5

## SALES BY DAY | HOUR

```

SELECT
    SUM(unit_price * transaction_qty) AS Total_Sales,
    SUM(transaction_qty) AS Total_Quantity,
    COUNT(*) AS Total_Orders
FROM
    coffee_shop_sales
WHERE
    Datepart (weekday, transaction_date) = 3 -- Filter for Tuesday (1 is Sunday, 2 is Monday,
..., 7 is Saturday)
    AND Datepart (hour, transaction_time) = 8 -- Filter for hour number 8
    AND MONTH(transaction_date) = 5;

```

Result Grid			
	Total_Sales	Total_Quantity	Total_Orders
▶	2969	874	612

**TO GET SALES FROM MONDAY TO SUNDAY FOR MONTH OF MAY**

```

SELECT
CASE
    WHEN datepart(weekday,transaction_date) = 2 THEN 'Monday'
    WHEN datepart(weekday,transaction_date) = 3 THEN 'Tuesday'
    WHEN datepart(weekday,transaction_date) = 4 THEN 'Wednesday'
    WHEN datepart(weekday,transaction_date) = 5 THEN 'Thursday'
    WHEN datepart(weekday,transaction_date) = 6 THEN 'Friday'
    WHEN datepart(weekday,transaction_date) = 7 THEN 'Saturday'
    ELSE 'Sunday'
END AS Day_of_Week,
SUM(unit_price * transaction_qty) AS Total_Sales
FROM
    coffee_shop_sales
WHERE
    MONTH(transaction_date) = 5 -- Filter for May (month number 5)
GROUP BY
CASE
    WHEN datepart(weekday,transaction_date) = 2 THEN 'Monday'
    WHEN datepart(weekday,transaction_date) = 3 THEN 'Tuesday'
    WHEN datepart(weekday,transaction_date) = 4 THEN 'Wednesday'
    WHEN datepart(weekday,transaction_date) = 5 THEN 'Thursday'
    WHEN datepart(weekday,transaction_date) = 6 THEN 'Friday'
    WHEN datepart(weekday,transaction_date) = 7 THEN 'Saturday'
    ELSE 'Sunday'
end

```

Result Grid		
	Day_of_Week	Total_Sales
▶	Monday	25221
	Tuesday	25347
	Wednesday	25465
	Thursday	20254
	Friday	20341
	Saturday	20795
	Sunday	19305

**TO GET SALES FOR ALL HOURS FOR MONTH OF MAY**

```
SELECT
    datepart (HOUR,transaction_time) AS Hour_of_Day,
    SUM(unit_price * transaction_qty) AS Total_Sales
FROM
    coffee_shop_sales
WHERE
    MONTH(transaction_date) = 5 -- Filter for May (month number 5)
GROUP BY
    datepart (HOUR,transaction_time)
ORDER BY datepart (HOUR,transaction_time)
;
```

Result Grid			Filter Rows:
	Hour_of_Day	Total_Sales	
▶	6	4913	
	7	14351	
	8	18822	
	9	19145	
	10	19639	
	11	10312	
	12	8870	
	13	9379	
	14	9058	
	15	9525	
	16	9154	
	17	8967	
	18	7680	
	19	6256	
	20	656	