

How to compare sales from the current year to the previous year with SQL

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Description

- There is a way to calculate a month-over-month difference. Instead of comparing against the previous month, we can compare against the same month in the previous year.
- To make this comparison possible, we need to use the LAG() function's optional offset parameter, as we can see in the following query



LAG () function

Accesses data from a previous row in the same result set without the use of a self-join starting. LAG provides access to a row at a given physical offset that comes before the current row. Use this analytic function in a SELECT statement to compare values in the current row with values in a previous row

Syntax

```
LAG (scalar_expression [ , offset ] [ , default ] ) [ IGNORE NULLS | RESPECT NULLS ]  
OVER ( [ partition_by_clause ] order_by_clause )
```

```

WITH monthly_metrics AS (
SELECT Year(Invoice_Date) AS year,
      Month(Invoice_Date) AS month,
      SUM(Total_Sales) AS revenue
FROM adidas_store
GROUP BY Year(Invoice_Date),Month(Invoice_Date)
),
removed_null AS (SELECT year AS current_year,
      month AS current_month,
      revenue AS revenue_current_month,
      LAG(year,12) OVER ( ORDER BY year, month) AS previous_year,
      LAG(month,12) OVER ( ORDER BY year, month) AS month_comparing_with,
      LAG(revenue,12) OVER ( ORDER BY year, month) AS revenue_12_months_ago,
      revenue - LAG(revenue,12) OVER (ORDER BY year, month) AS month_to_month_difference
FROM monthly_metrics
)
SELECT *
FROM removed_null
WHERE previous_year IS NOT NULL

```

current_year	current_month	revenue_current_month	previous_year	month_comparing_with	revenue_12_months_ago	month_to_month_difference
2021	1	5522540	2020	1	1625376	3897164
2021	2	4610218	2020	2	1499800	3110418
2021	3	3914849	2020	3	1766058	2148791
2021	4	4773297	2020	4	2460702	2312595
2021	5	6358964	2020	5	1691804	4667160
2021	6	6591754	2020	6	882983	5708771
2021	7	7833465	2020	7	1714601	6118864
2021	8	7228817	2020	8	1987797	5241020
2021	9	5935703	2020	9	1830441	4105262
2021	10	5307478	2020	10	1083624	4223854
2021	11	5923494	2020	11	862226	5061268
2021	12	7781546	2020	12	802653	6978893

SQL CODE

Result

Conclusion

We use a Lag() function to access previous rows data as per defined offset value. It is a window function available from SQL Server 2012 onwards. **WHERE previous_year IS NOT NULL** statement was used to removed the row with null values previous year column.

Thanks...

