


18_Y-on-Y Growth Rate Hard - Solution

Source -  nicksinghtech Wayfair SQL Interview Question | DataLemur

Running Notes

- we have user transactions
- query - year-on-year growth rate for the total spend of each product, grouping the results by product ID.
- output should include the year in ascending order, product ID, current year's spend, previous year's spend and year-on-year growth percentage, rounded to 2 decimal places.
- confusing at first but lets go step by step

```
SELECT *, EXTRACT(YEAR from transaction_date) as year FROM user_transactions;
```

- okay so i got the year what now

```
WITH calculation_row_CTE AS (SELECT EXTRACT(YEAR from transaction_date) as  
year, product_id, spend AS curr_year_spend, LAG(spend) OVER(a PARTITION BY  
product_id ORDER BY (EXTRACT(YEAR from transaction_date))) ) AS  
prev_year_spend FROM user_transactions) SELECT *, round(((curr_year_spend-  
prev_year_spend)/prev_year_spend)*100,2) AS yoy_rate FROM calculation_row_CTE  
ORDER BY product_id,year;
```

creating a CTE for easy calculation of yoy so I can directly use the columns for calculations

WITH calculation_row_CTE AS (SELECT
 EXTRACT(YEAR from transaction_date) as year,
 product_id, → 2) we need product_id.
 SUM(spend) OVER(
 PARTITION BY product_id, EXTRACT(YEAR from transaction_date)
) AS curr_year_spend,
 LAG(spend) OVER(
 PARTITION BY product_id ← so basically I need to get the previous year's spend but that has to be for the same product
 ORDER BY (EXTRACT(YEAR from transaction_date)) ← to get the previous I need to order by year
) AS prev_year_spend
 FROM user_transactions)

SELECT *,
 round(((curr_year_spend - prev_year_spend) / prev_year_spend) * 100, 2) AS yoy_rate
 FROM calculation_row_CTE
 ORDER BY product_id, year;

1) we need the year

calculation of yoy-rate

→ so the question says I need the current year's spend
 → okay update, the code I had written initially had sum & all but while making the notes I realised
 current year spend ⇒ spend column
 then this is the part where I calculate the previous year's spend

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