

Query –

Calculate the monthly year over year growth for sales and cost by product.

Syntax (PostgreSQL) –

```
WITH
temp_view AS(
  (select
    r.course,
    to_char(r.date, 'MM') as month,
    to_char(r.date, 'YY') as c_year,
    SUM(r.gross_charge - COALESCE(r.refund_amount,0)) as amount,
    'Gross Sales'::text as type
  from course_revenue r
  group by r.course, month, c_year)
  UNION ALL
  (select
    r.course,
    to_char(r.date, 'MM') as month,
    to_char(r.date, 'YY') as c_year,
    SUM(r.total_spend) as amount,
    'Gross Expenditure'::text as type
  from course_spend r
  group by r.course, month, c_year))

SELECT course, type, month,
       SUM(CASE c_year
            WHEN '18' THEN amount
            WHEN '17' THEN -amount
            END) AS growth
FROM   temp_view
GROUP BY course, type, month;
```

Result Snapshot –

course	type	month	growth
TX.PTDE	Gross Expenditure	4	140
TX.PTDE	Gross Expenditure	5	30
CA.DE	Gross Expenditure	4	5
TX.PTDE	Gross Sales	5	100
TX.PTDE	Gross Sales	4	235
CA.DE	Gross Sales	4	49
CA.DE	Gross Sales	5	49