

SQL-07 | CTEs, Views, Union and Self Joins

Lecture Queries

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```
WITH sales_by_day_vendor AS (  
  SELECT  
    cp.market_date,  
    md.market_day,  
    md.market_week,  
    md.market_year,  
    cp.vendor_id,  
    v.vendor_name,  
    v.vendor_type,  
    ROUND(SUM(quantity * cost_to_customer_per_qty),  
2) AS total_sales  
  FROM farmers_market.customer_purchases AS cp  
    LEFT JOIN farmers_market.market_date_info AS md  
      ON cp.market_date = md.market_date  
    LEFT JOIN farmers_market.vendor AS v
```

```
    ON cp.vendor_id = v.vendor_id  
  GROUP BY  
    cp.market_date,  
    cp.vendor_id,  
    md.market_day,  
    md.market_week,  
    md.market_year,  
    v.vendor_name,  
    v.vendor_type  
  ORDER BY cp.market_date, cp.vendor_id  
)  
  
SELECT s.market_year,  
  s.market_week,  
  SUM(s.total_sales) AS weekly_sales  
FROM sales_by_day_vendor AS s  
GROUP BY s.market_year, s.market_week
```

Q: Get the empno with the highest salary

depname	empno	salary
develop	11	5200
develop	7	4200
develop	9	4500
develop	8	6000
develop	10	5200
personnel	5	3500
personnel	2	3900
sales	3	4800
sales	1	5000
sales	4	4800

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```
WITH sal_rank AS
(SELECT empno,
        RANK() OVER(ORDER BY salary DESC) rnk
FROM salaries
)
SELECT empno FROM sal_rank
WHERE rnk = 1;
```

Views

```
CREATE VIEW farmers_market.vw_sales_by_day_vendor AS
SELECT
    cp.market_date,
    md.market_day,
    md.market_week,
    md.market_year,
    cp.vendor_id,
    v.vendor_name,
    v.vendor_type,
    ROUND(SUM(cp.quantity * cp.cost_to_customer_per_qty),2) AS sales
FROM farmers_market.customer_purchases AS cp
    LEFT JOIN farmers_market.market_date_info AS md
        ON cp.market_date = md.market_date
    LEFT JOIN farmers_market.vendor AS v
        ON cp.vendor_id = v.vendor_id
GROUP BY cp.market_date, cp.vendor_id
ORDER BY cp.market_date, cp.vendor_id
```

Views vs CTEs

Although there are some differences between them, common table expressions and views seem to perform very similarly. So, when should you use each one?

- **Ad-hoc queries.** For queries that are referenced occasionally (or just once), it's usually better to use a CTE. If you need the query again, you can just copy the CTE and modify it if necessary.
- **Frequently used queries.** If you tend to reference the same query often, creating a corresponding view is a good idea. However, you'll need **create view permission** in your database to create a view.
- **Access management.** A view might be used to restrict particular users' database access while still allowing them to get the information they need. You can give users access to specific views that query the data they're allowed to see without exposing the whole database. In such a case, a view provides an additional access layer.

Unions

Let's look at one more important clause the Union clause.

- Using a UNION, you can combine any two queries that result in the same number of columns with the same data types.
- The columns must be in the same order in both queries.
- There are many possible use cases for UNION queries, but the syntax is simple: write two queries with the same number and type of fields, and put a UNION keyword between them:

Let's say you want to get all the cities from two different tables.

```
SELECT City FROM Customers
UNION
SELECT City FROM Suppliers
ORDER BY City;
```


Question Extract all the customers from the same Zip code.

This is where you'd need to use self join.

A self-join in SQL is when a table is joined to itself (you can think of it like two copies of the table joined together) in order to compare rows to one another.

```
SELECT
    A.customer_first_name AS CN1,
    B.customer_first_name CN2,
    A.customer_zip
From farmers_market.customer as A, farmers_market.customer B
WHERE A.customer_id <> B.customer_id
    AND
    A.customer_zip = B.customer_zip
```

